Practising change and changing practices:
The 'practicescape' of utility cycling as modal 'choice'

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This thesis offers a critical consideration of theories of social practice, or 'practice theory', as a theoretical and analytical framework for the promotion of shifts to sustainable practices. From a practice perspective, it is what people *do*, as socially and materially mediated practices, that lock in undesirable environmental impacts, such as climate change. Therefore, it is practices that must change – in particular, so that more favourable, sustainable practices are promoted over less desirable, less sustainable alternatives. This research applies these concepts to the promotion of utility cycling – cycling for transport – as an example of a desirable low-carbon personal mobility practice, with an interest in how its participation might be increased.

Practice theoretical approaches place single moments of recognisable acting into a performative, recursive relationship with their wider context, meaning that individual performances of seemingly mundane everyday practices are set into dynamic relationship with a diverse array of elements, which may shape, and be shaped by, those performances. When considered in this way, utility cycling becomes far more than simply a 'choice' made by an individual. Instead, modal options are heavily prefigured by elements as diverse as bikes, roads, cycleways, weather, loads to be carried, norms, identity and daily scheduling, etc.

However, the concept of a practice, as some kind of 'entity', remains somewhat elusive. While practices may readily enter the everyday vernacular, as a recognisable 'way of doing something', more precise analytical bounding of doing into some kind of entity can become problematic. The practice dynamic contains at its core a fundamental tension between some kind of recognisable activity – a verb – and the elements of its wider context – as nouns. Away from more formal examples of practices, a single, bounded, normative practice entity can become challenging to account for – and, as this research suggests, perhaps even inappropriate for the promotion of pre-existing alternative practices in mundane everyday settings.

In this work, utility cycling was analysed from a practice perspective, as modal 'choice' through a diverse range of observations and data sources. These included street observations of cyclists, in-

depth interviews with regular utility cyclists, observations and survey data from an extensive one-to-one travel planning exercise conducted in local office buildings, plus government travel data. The conduct of this research highlighted that investigation into practices cannot be considered independently of the research context. The empirical engagement with the research question made it clear that utility cycling was only relevant to this work in terms of modal 'choice' – i.e., somehow selecting between competing modal practices against a backdrop of other everyday practices.

To this end, a 'practicescape' approach is proposed which provides a more generic application of practice theoretical principles without requiring an account of an intermediate practice entity. Especially suited to instrumental interventions where practice switching is the desired outcome, it identifies a central activity of interest relative to the research question and then places it into dynamic relationship with a wider practice landscape – a *practicescape* – comprising the stuff of practices, but not restricted to the delineation of any single practice. Concepts of a 'utility horizon' and a 'utility envelope' are introduced to provide an analytical framing and narrative sense making to the process.

The aim of this approach is to introduce an analytical framework that is more practically and intuitively accessible to change-makers and policymakers who are deeply immersed within their own practicescapes of interest, but are not necessarily conversant with the more arcane mysteries of practice as a theoretical construct. This then offers a practice-compatible framework through which change may be practised through deep engagement with the practicescape containing the change.

Keywords:

Practice theory; social practice; sociotechnical change; everyday life; transport; cycling

To Sharon

In memory of Alec and Frances

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1. Introduction

Concerns on a number of environmental and social fronts are leading to calls for fundamental change in the way human beings act in the world. However, despite the increasing urgency of such calls, the extent and depth of actual sociotechnical change achieved continues to fall short of that required – both globally (e.g., Díaz et al., 2019; IPCC, 2014; Saghir et al., 2020) and at the national, New Zealand level (Climate Change Commission, 2021; Ministry for the Environment & Stats NZ, 2019; Seaby Andersen et al., 2020). Realising far-reaching sociotechnical change in 'the things we do' and the way we do them, at all levels of life, is a challenging proposition indeed.

This thesis explores these challenges via an examination of attempts to promote utility cycling – cycling for transport purposes. Light vehicle transport is a significant contributor to global carbon emissions, in New Zealand, making up 23.0% of New Zealand's non-agricultural emissions (Ministry for the Environment, 2020a, 2020b).[1] At the same time, traffic congestion has significantly impacted upon civic amenity in many public spaces (Christchurch City Council, 2012; Gehl Architects, 2009), and sedentary lifestyles and road accidents have adversely affected public health outcomes (Genter, Donovan, Petrenas, & Badland, 2008). Yet, despite these well established impacts of the car, vehicle ownership rates are high and increasing in New Zealand, while distances travelled per capita have changed little in the past two decades (Ministry of Transport, 2021a, 2021b).[2] Over a similar period, rates of cycling appear to have slightly decreased (Statistics New Zealand, 2013, 2018)[3] and attempts to build dedicated cycling infrastructure continue to encounter significant opposition (Field, Wild, Woodward, Macmillan, & Mackie, 2018).

[1] In New Zealand, road transport contributes 19.1% of total carbon emissions and 36.6% of non-agricultural emissions and cars in particular contribute 12.0% of the total and 23.0% of the non-agricultural total. (Calculated from Ministry for the Environment (2020a, 2020b).)

[2] In 2019, there were 0.82 light vehicles for every person in New Zealand, an increase from 0.65 in 2000 (Ministry of Transport, 2021b). (The same figure was 0.94 in 2019 in Christchurch's province Canterbury, which is well suited to cycling, up from 0.74 in 2000). Vehicle kilometres travelled per capita has remained similar to 2001 levels at around 9,000 km per person per year (Ministry of Transport, 2021a).

[3] Cycling, as a share of Census means of travel to work data, has fallen slightly from 2.4% of trips in 2001 to 2.0% in 2018. Over the same period, cycling has decreased from 4.6% to 4.0% in Canterbury. (Calculated from Statistics New Zealand (2013, 2018).)

In this way, then, attempts to promote utility cycling exemplify the broader global challenges outlined in the opening paragraph well: problems with fossil-fuel based modes of transport are well established, yet change is proving difficult. Change in this context can be characterised as an attempt to discourage a less desirable and less sustainable, but dominant practice – driving – in favour of a more desirable, but niche practice – utility cycling. Reaching as it does into all levels of daily life, attempts to change the nature of everyday transport in favour of more active, low-carbon modes of transport like utility cycling, can expose some of the complex ramifications encountered in the face of such change. The capability of the private motor vehicle has shaped all levels the modern world (Urry, 2004) and, therefore, extracting the car from society involves much more than mere modal substitution with the bike. It is in such a manner that the promotion of utility cycling serves as an instructive case study through which to consider possible new framings of how such change in what people do and how they do it – especially as practice substitution – may be regarded.

This chapter will begin by considering the mainstream approaches typically adopted towards the promotion of utility cycling, which tend to favour either a top-down technocratic approach or an individualistic focus on personal choice and behaviours. It then goes on to question whether this high-level, top-down perspective on modal choice matches the everyday experience of the individuals who enact these macro phenomena – of a person trying to travel somewhere in real time, in the midst of daily life. Viewing utility cycling from such an angle then sets up 'practice theory' to be evaluated as a potential theoretical framing to integrate these everyday aspects of utility cycling into the wider setting – a question to be explored throughout the remainder of this work. The chapter concludes with a brief introduction to cycling in Christchurch, New Zealand – the setting for this research.

1.1 Mainstream approaches to encouraging utility cycling

Viewed in light of the challenges that the car presents in terms of carbon emissions, air pollution, sedentary populations and erosion of civic amenity, utility cycling is perhaps the ultimate form of transport for planners, policymakers and advocacy groups, offering, as it does, an opportunity to address so many of these issues simultaneously. In New Zealand, the wide-ranging benefits of cycling are identified as being no less than: reduced carbon emissions; better air quality; more 'liveable' towns and cities; reduced traffic congestion; cost savings for councils; more active communities and improved public health; stronger local economies; plus, the enjoyment of cycling generally (Ministry of Transport, 2018; New Zealand Transport Agency, 2016b). A significant body of research in the transport literature, very aware of these potential benefits, has strived to identify ways by which the

incidence of cycling for transport may be increased as a share of everyday transport, so that these many benefits may be more widely enjoyed (e.g., Fishman, 2016; Handy, van Wee, & Kroesen, 2014; Mizdrak, Blakely, Cleghorn, & Cobiac, 2019; Pucher & Buehler, 2012a; Sims et al., 2014; Woodcock, Banister, Edwards, Prentice, & Roberts, 2007).

The perceived desirability of the bike and its potential to address many transport problems has led to the emergence of many passionate and vocal advocates at the levels of planning and policy and a vast body of literature that explores means of increasing rates of utility cycling. In this context, cycling is often presented as an ideal solution to such problems. For example:

> "[C]ycling is a fundamentally safe and healthy activity that not only benefits the individual cyclist but also promotes safety among other road users and a healthier environment for the entire population." (Jacobsen & Rutter, 2012, p. 152)

Due to this potential, advocates push strongly for higher rates of cycling, especially in flat, relatively compact cities like Christchurch, New Zealand. They point to accounts of cities such as Copenhagen and Amsterdam – which have high rates of cycling, to such a degree that cycling is considered a typical and mainstream form of everyday travel – to demonstrate that higher rates of cycling are indeed possible (Pucher & Buehler, 2008; Pucher, Dill, & Handy, 2010). They also point to individuals who cycle on a regular basis as an example of what is possible (e.g., Heinen, van Wee, & Maat, 2010). Pro-utility cycling research, therefore, tends to adopt a position that the benefits of utility cycling are self-evident and therefore what is required is a focus primarily on the barriers that obstruct cycling and the lack of understanding of the benefits that limits its uptake. This appears to assume a large cohort of people in waiting – ready, willing and able to incorporate utility cycling into their everyday lives, with only simple barriers and lack of awareness holding them back.

To explain cases where cycling is not adopted, those barriers are typically identified as either safety-related – especially, due to a lack of suitable cycling infrastructure – or as an informational or attitudinal deficit, to be overcome by education into the benefits of cycling and practical solutions to overcome barriers (Bowie, Thomas, Kortegast, O'Donnell, & Davison, 2019; Cheyne, Imran, Scott, & Tien, 2015; Gribble & Douglas, 2014; Heinen et al., 2010; Kingham, Taylor, & Koorey, 2011; Pucher et al., 2010; Scheepers et al., 2014; Wang, Mirza, Cheung, & Moradi, 2014). Policy approaches to improving the rates of utility cycling typically, therefore, address one or both of two angles: either top-down, technocratic policy interventions to improve road safety for cyclists through infrastructure and regulation; or, economic, psychological or sociological attempts to understand individual modal choice, in line with other attempts at implementing sustainable practices (Spaargaren, 2013). In New

Zealand, policy approaches to encouraging cycling at local and central government levels follow a similar emphasis on safety, infrastructure, education and promotion (Christchurch City Council, 2012; Ministry of Transport, 2008, 2018).

Road safety for cyclists is typically – and understandably – a central focus of any intervention into utility cycling, as actual and perceived safety concerns are frequently identified as a significant barrier to cycling, and also impact upon its enjoyment (Jacobsen, Racioppi, & Rutter, 2009; Kingham et al., 2011). As a result, provision of a safe and connected network of separated cycleways is almost universally considered to be a basic, entry-level requirement for any city to improve participation rates in cycling. A significant body of research, therefore, focuses on the provision of traffic infrastructure that separates bikes from motor vehicles, such as separated cycleways and bike-specific signalling at intersections (Aldred, Elliott, Woodcock, & Goodman, 2017; Dill, 2009; Pucher et al., 2010).

Such 'hard' policy recommendations are usually complemented with 'soft' programmes to promote the benefits of cycling and educate the public with respect to cycling safety. These models have their origins in economics, social psychology or marketing and consumer studies. From economics, utility based theories are common, which assume that travellers attempt to rationally trade off costs in terms of time, money or effort, in favour of maximising utility as "an abstract measure of the degree to which the alternative satisfies their needs or desires and matches their preferences" (Schwanen & Lucas, 2011, p. 9). These approaches typically attempt to measure and model this process quantitatively (Maat, van Wee, & Stead, 2005; Schwanen & Lucas, 2011). Approaches from social psychology, such as the Theory of Planned Behaviour (Ajzen, 1991) or the Theory of Interpersonal Behaviour (Triandis, 1977), are popular in studies of modal choice. These model behavioural outcomes on the basis of individual intentions shaped by attitudes and social norms (Heinen et al., 2010; Schwanen & Lucas, 2011). Approaches drawing on consumer behaviour studies and marketing, such as 'nudge' theory (Thaler & Sunstein, 2012) and 'social marketing' (French, Blair-Stevens, McVey, & Merritt, 2010), including audience segmentation, have also become popular in recent policy interventions (Barr & Prillwitz, 2014). These methods aim to use the marketing and promotional tools developed from consumerism to – subtly or explicitly – influence individuals towards favouring desirable sustainable behaviours. Social-psychological or sociological approaches extend to the human dynamics of groups of individuals, where concepts such as culture, norms, gender identities, stigma, legitimacy and image are presented as reasons that individual choose to cycle, or not (e.g., Aldred, 2010, 2013; Aldred, Woodcock, & Goodman, 2016; Füssl & Haupt, 2017; Handy et al., 2014). What these 'soft' approaches have in common when applied to cycling, especially in terms of modal choice, is that they

are typically based on models of rational choice or intention that strongly implicate the individual and individual agency in modal decisions.

A number of authors (e.g., Jacobsen & Rutter, 2012; Pucher & Buehler, 2012b; Pucher et al., 2010) promote a diverse and "integrated" approach to policy. They recognise cycling as complex and needing to be addressed as a whole, so that the total effectiveness of all policies is more than the sum of its constituent parts in isolation. Indeed, research into how to encourage utility cycling comes from a wide range of disciplines, such as engineering, policy, planning, geospatial information, economics, public health or psychology – and a large number of aspects are considered, including: types of cycling infrastructure, workplace facilities, bike parking, public transport integration, bike provision, bike rental schemes, promotional activities and materials, communications, economic incentives or penalties, individual travel planning, education and training, laws and regulations, legal issues, urban form, terrain, seasons and weather, socio-economic factors, attitudes, social norms, habits, cost, travel time, effort and safety (Heinen et al., 2010; Pucher et al., 2010; Scheepers et al., 2014). However, without a clearly stated theoretical framing, this diversity of disciplines and areas of focus can appear piecemeal and lack coherence.

1.2 Critique of mainstream approaches to encourage utility cycling

In the cycling research, theoretical positions are rarely stated explicitly, perhaps due to a desire for straightforward pragmatism and effective action (Schwanen, Banister, & Anable, 2012), yet tend to express unacknowledged assumptions of unproblematic technological determinism or human intention and agency. Even when a diverse range of factors is presented simultaneously, which may nominally cover many aspects affecting utility cycling, each factor seems to be considered in isolation or in simplistic interaction. The sheer number of factors being considered can become bewildering and lacking in a consistent and effective theoretical framing that positions utility cycling within a wider social setting. However, a linear framing supports a paradigm that assumes that, with the right information and analysis, the right interventions can be identified, to then be implemented externally for an increase in utility cycling participation rates.

As Shove (2010a, 2011) asserts, however, multiple approaches in a scatter-gun manner are not automatically better than a well suited theoretical framework. Instead, as seen in the mainstream cycling literature, even diverse approaches may be responding to a particular type of theoretical problem framing which restricts responses to only those theoretically consistent with that framing. Shove cautions against assumptions that complex sociotechnical transitions can be 'managed' from

without (Shove & Walker, 2007), as well as approaches that externalise the wider socio-material context in which behaviour takes place and assume that need and desire arise solely within the individual. Shove (2010a) argues that limiting policy attention to conceptions of a sovereign individual blinds policy makers to the resources of a vast range of other social science paradigms that locate individual attitudes as outcomes of sociotechnical systems rather than as pre-existing drivers of them. This, she suggests, may indeed often be a political move to obscure the deep level of institutional change required for effective sustainable change.

Behavioural and marketing approaches that load responsibility for modal choice on to the 'attitudes' or 'values' of the individual based on 'choice' – what Shove (2010a) calls a paradigm of "ABC" (attitude, behaviour, choice) – have come in for particular criticism. Such approaches have become popular, particularly with those who favour neoliberal models of the individual as "citizen consumer" (Barr & Prillwitz, 2014). These reflect wider policy discourses in western societies that are "largely individualistic and premised on the idea that the individual – as the key agent who chooses, interprets and ascribes meanings to travel patterns – is an essential site for bringing about change through public policy" (Schwanen et al., 2012, p. 523). This is a perspective which, in the extreme, can lead to concerns about cycling being characterised as "excuses" (Smith, Wilson, & Armstrong, 2011, pp. 2-3). When the promotion of cycling is presented as a set of barriers to be overcome, usually in isolation, top-down technocratic infrastructure interventions and individualistic behavioural focus become different sides of the same coin. A 'barriers' framing, when combined with assumptions individual attitudinal agency, means that once a stated barrier has been overcome, then individual choice, shaped by attitude, is all that is required to change behaviour (Shove, 2010a; Strengers, Moloney, Maller, & Horne, 2015).

The predominant focus on safety and infrastructure provision in cycling policy and literature, often in isolation, relies on an unacknowledged assumption of technological determinism – an 'if you build it, they will come' mentality – backed by individual attitudinal agency. Eliminating the safety obstacle, clears the way for individuals to simply be educated in the clear benefits of cycling. Much of this confidence appears to be based on an assumption that the famously large cohort of "Interested but Concerned" cyclists (Geller, 2009; Hosford, Laberee, Fuller, Kestens, & Winters, 2020) is eager to ride a bike if certain barriers, especially safety concerns, could be removed. This is often backed up by stated desires to cycle more often (e.g., Dill & McNeil, 2013; New Zealand Transport Agency, 2015) which, when combined with assumptions of attitudinal agency, is used to suggest a large cohort of cyclists 'waiting in the wings' ready to cycle once dedicated infrastructure is available.

However, such conclusions fail to recognise alternative framings in which sociotechnical interventions are highly contingent and deeply entangled within complex sociomaterial dynamics. At the very least, it should be noted that stated environmental intentions, while well meant, are notoriously unreliable (e.g., Carrington, Neville, & Whitwell, 2014; Kollmuss & Agyeman, 2002). More fundamentally though, the typically reductive mainstream framing leaves it up to the individual to work out how to integrate change into the complexities of everyday life (Keller, Halkier, & Wilska, 2016). And, by overlooking the "creative process of embedding, modifying and existing routines and patterns of daily life", more fundamental questions relating to ways of living – and even standards of living – are taken off the table (Shove, 2015, p. 39).

A result of theorising that conceives of behavioural outcomes in terms of individual or collective human intention, is that modal choice interventions are often framed in terms of needing to 'promote' cycling or 'educate' people to the benefits of cycling in order to change attitudes and overcome barriers (Pucher et al., 2010). The assumption common to these perspectives is that people choose not to ride bikes due to an informational or attitudinal deficit: a failure to understand the benefits of cycling as well as a lack of knowledge of how to overcome perceived practical or social barriers. The fact that, for a similar trip, some choose to cycle while others do not, is used to demonstrate this:

> "[I]ndividuals in identical situations and in the same socio-economic groups choose to commute using different transport modes. This implies that an individual will base his or her choice not on an objective situation, but on their perception of that situation; their eventual decision is thus also grounded in internal factors." (Heinen et al., 2010, p. 83)

Such an approach is especially prevalent in the United Kingdom where the Department for Environment, Food and Rural Affairs (Defra) has a dedicated behavioural insights team (Defra, 2008). At the New Zealand Transport Agency (NZTA), the team responsible for delivering the National Cycling Programme, along with community engagement and initiatives encouraging cycling safe infrastructure provision, also focuses on "attitudinal change" as a key objective (New Zealand Transport Agency, 2016a, p. 4).

This research asks whether addressing 'barriers' and providing education and promotion alone are sufficient to lead to a wider uptake of utility cycling at the expense of the car. If safety is improved, with better cycleways, more convenient bike parking, workplace locker facilities, etc. and campaigns show how beneficial and enjoyable cycling is, will this lead to a large proportion of people leaving their car at home in a city still largely designed around the car? Although restricting and discouraging car use is recognised as an important aspect of promoting utility cycling (Pucher & Buehler, 2008,

2012b; Wang et al., 2014), transport policy in Christchurch and New Zealand also aims to improve automotive travel at the same time as cycling (Christchurch City Council, 2012; Ministry of Transport, 2018). As we shall see, while Christchurch – the subject of this research – is an ideal city for cycling, it is also an ideal city for driving.[4] So, if the situation for cyclists is improved, while work also continues to simultaneously improve the lot for the car, will a barriers and benefits approach be sufficient to shift the modal balance in favour of the bike? Work that presents utility cycling as deeply entangled within the lived realities of everyday life casts doubt upon the success of such endeavours in isolation.

1.3 A case for the everyday in modal choice to cycle

Although the benefits of utility cycling are clear cut and well established, a number of authors find that those benefits – so apparently obvious at the larger, collective scale – become less obvious at the level of individual, everyday practical coping (e.g., Anable, 2005; Jarvis, 2003; Mackett, 2003; Pooley, Horton, et al., 2011). In these accounts, small practical issues – which tended to be either overlooked or minimised in the mainstream utility cycling research – play a more important and nuanced role against the complexities of everyday life. Presented in this way, alternatives to the car did not appear to be as easy or as discretionary as is implied in much of the mainstream research (Anable, 2005; Mackett, 2003), suggesting that "the very real tensions underpinning individual and household decision making have first to be understood" (Jarvis, 2003, p. 603). Pooley, Horton, et al. (2011) agree that

> "much of the recent research and policy literature on walking and cycling focuses on issues such as journey purpose, time, distance, and the physical environment whilst neglecting the effects of personal and household factors or, at best, reducing them to a series of summary variables relating to personal characteristics such as age, household size and gender." (Pooley, Horton, et al., 2011, p. 1601)

They also note that the quantitative methods favoured by most research frequently fail to adequately capture the minutiae and complexity of household decision making (Pooley, Horton, et al., 2011, p. 1602). The complexities of individual travel cannot simply be aggregated to the individual level or groups of individuals because, inverting the logic of attitude-centred approaches, the same person with the same attitude will respond differently to different situations (Anable, 2005, p. 65). Every individual encounters too many distinct situations in any single day to make any generalisations at

[4] See Section 1.7 on p. 15 for more on the research setting.

the level of the individual alone. A wide range of factors affecting cycling do need to be understood in complex relation to one another, as described earlier, however, this also must encompass the logic that exists at the level of everyday life where transport is performed (Jarvis, 2003).

Mainstream studies tend to underestimate the practical, day-to-day factors that impact cycling. For example, in the New Zealand setting, Kingham et al. (2011) in their consideration of barriers and motivations for utility cycling, respondents reported practical everyday issues such as load carrying, transporting children, cycle clothing, equipment and accessories, time and organisation, distance, etc. as impacting their cycling, however, their conclusion emphasised primarily safety and infrastructural concerns. Bowie et al. (2019) mention situational, trip level "day to day" environmental variables such as wind, rain, terrain, attractiveness or flooding, however, these are not incorporated into their model. Cheyne et al. (2015) also identify a wide range of practical, everyday challenges to cycling, as well as "personal and interpersonal factors", but the concluding emphasis is still on safety, infrastructure and facilities, with challenges simply needing to be "addressed" individually and perceptions dealt with via social marketing. Smith et al. (2011, pp. 2-3) characterise such everyday concerns about cycling as "excuses".

There are, however, a small number of commentators who have placed the everyday, lived experience of transport at the centre of their accounts. Notably, Pooley et al. undertook an extensive qualitative, ethnographic investigation of walking and cycling in the UK from the household perspective (Pooley, Horton, et al., 2013; Pooley, Horton, et al., 2011; Pooley, Tight, et al., 2011). In contrast to most transport cycling research, they concluded, without minimisation, that, in pursuit of desirable sustainable and active travel, "the complexities and contingencies that most people encounter in everyday life often make such behavioural change difficult" (Pooley, Horton, et al., 2013, p. 66). Their qualitative, ethnographic approach reveals a much more complex and nuanced picture requiring far-reaching change. Their summary of this is worth quoting at length:

> "[O]ur research shows that, under the conditions which currently prevail across urban Britain, household and family commitments are significant factors in restricting the extent to which people use walking and cycling for everyday travel, even when their own values and attitudes incline them towards more sustainable forms of transport. For most people there is no single factor that restricts the use of more sustainable travel modes, rather it is a combination of circumstances including the logistics of organising and moving with (sometimes tired) children, pressures of time and other commitments, the ready availability of the paraphernalia needed for walking and cycling and parental concerns about safety. Unless such factors are explicitly recognised and tackled, strategies to increase levels of walking and cycling for everyday trips are likely to have limited success." (Pooley, Tight, et al., 2011, p. 15)

They recognise many of the same issues identified in other work, and even come to similar recommendations, however, their framing in terms of household realities and lived experience, offers a very different theoretical positioning. Rather than making solutions clearer or simpler, their work instead makes them harder and even more challenging by recognising the extent to which automobility is entangled in everyday life. They avoid simplistic and partial characterisations that minimise or dismiss 'barriers' as simply something to be 'addressed'. Instead they recognise that the challenges of everyday life often simply do not leave energy or room for idealistic solutions that may appear feasible when considered in isolation.

Such approaches force the bike to be considered at the same time as the car and make it clear that busy and complex lives have come to depend on the functional capabilities of the car. Urry (2004) emphasises how this influence extends beyond mere convenience, to the extent that the independent mobility of the car has shaped the spatial and temporal organisation of modern life:

> "Automobility has irreversibly set in train new socialities [...]. Cars extend where people can go to and hence *what they are literally able to do*. Much 'social life' could not be undertaken without the flexibilities of the car and its 24-hour availability.." (Urry, 2004, p. 28, emphasis added)

The car has increased personal mobility beyond what used to be possible with public transport alone (Stradling, Meadows, & Beatty, 2000, pp. 207-208, quoting Begg, 1998), which has meant that vehicle traffic is even linked to economic activity (King, 2007, p. 3; Zöllner, 2014). Fully situated in the irreversible urgency and temporality of everyday life, the functional capabilities of the car become more than a simple, 'nice-to-have' option. Mackett (2003, p. 347) observed, for example, that "[r]elatively few examples of trivial reasons for using the car were found". Instead, the car actually enables whole lifestyles and ways of life that are not easy to change: "lifestyle patterns generate travel needs" (Stradling, 2007, p. 201). Short time windows in which to travel to a wide range of destinations often cannot be met by alternative modes, leading to car dependence (Jakobsson, 2007). Busy families with children, for example, find themselves with fewer travel choices than single-person households (Vilhelmson, 2007).

Practical experience in the famously cycling city of Copenhagen in Denmark demonstrates the importance of a focus on the everyday experience of cycling. Cycling advocate and consultant, Mikael Colville-Andersen (2010) cites City of Copenhagen research that for 56% of cyclists their main reason for cycling is that it is "the quickest and easiest" way to get around (compared to 19% for "good exercise", 6% because it's inexpensive and 1% for environmental reasons). He concluded that:

> People on bicycles are no different than people on foot, on trains, planes and automobiles. They want to get there quick. Homo sapiens are like rivers – we'll always take the quickest route. (Colville-Andersen, 2010)

Research perspectives that situate and deeply entangle the bike and its sociomaterial accoutrements within the messy complexities of everyday life – including the sheer utility and appeal of the car – disrupt the convenient linear assumptions of some utility cycling research and much government policy. The reality it presents is more disturbing, but also emphasises the urgency of new, more comprehensive framings of such pressing issues.

1.4 Research opportunities

This research has been motivated by a strong environmental desire to reduce transport carbon emissions, and a recognition that an increase in utility cycling is an important potential contributor toward this goal. However, as noted, much of the mainstream research and advocacy has tended to rely on the stated intentions of a large cohort of "Interested but Concerned" cyclists (Geller, 2009), apparently eager to ride a bike if it could only be made safer and they could become aware of its many benefits (e.g., New Zealand Transport Agency, 2015). The few examples of research that attempted to fully situate questions of modal choice within the complexities of everyday life, presented in the previous section, found alternatives to the car to be more problematic than much of the research suggests. This research asks how utility cycling may be regarded differently if utility cycling is considered in a more complex relationship with the lives of those it transports, included the utility of the car.

As we have seen, typical approaches to promoting utility cycling tend to consider infrastructural, policy and human social or psychological factors in isolation. They typically lack a comprehensive theoretical framework that allows for the importance of the relative functional utility of the car and the bike, embedded in the lived complexity of everyday lives in complex and dynamic sociotechnical settings. While typical approaches to promoting utility cycling may consider a vast array of factors that affect cycling, and from a wide range of disciplines, in general, analytical efforts are directed at the macroscopic level, at the scale of cities and roads, or at demographic groups of individuals. Where the focus is on people, this tends to be at an aggregate level, especially demographics, such as age and gender, so that the individual is the smallest unit of analysis. However, this assumes that travel decisions are determined by the characteristics of the person alone.

This research, instead, explores the proposition that the much finer level of the individual, situated *trip* – as intersection between person, mode and situation – may be an important level at which to consider personal mobility and modal choices. To do this, it is necessary to find a way of exploring those circumstances that people find themselves in, that can change from moment to moment, where it is impossible to generalise how they will act, independently of the fully situated and temporal context of the moment. The same person, making the same trip to the same destination may, in an instant, change their modal choice simply because they have realised they are now running late – or perhaps due to the weather, time of day, clothing choices, who or what they are taking with them – or simply due to their mood in that moment. At the aggregate level, it can be argued that because some people ride a bike, other people who drive a car for a similar trip must therefore be 'choosing' not to take the bike merely on the basis of 'attitude'. However, as noted above, trips that appear similar from a distance are very rarely similar in context – and those apparently 'small' details can significantly alter the modal requirements.

Given the difficulties of generalising about modal choice at the level of individuals, is it instead possible to account for the highly situated and dynamic moments of everyday life, where the situated triad of person, mode and trip circumstances come together? This raises questions about a methodology where the unit of analysis is centred on contextualised, performative and relational level of the individual *trip*.[5] This work sets out to characterise the decision to travel by bike, or not, as an evolving situation that *emerges* dynamically *between* triad of the person, the mode of transport and the situation in that place at the precise moment of acting. It strives to examine utility cycling as a sociotechnical phenomenon that is both fully immersed in, and at the same time fully implicated in, the messiness of everyday life, competing directly with the frustrating coincidence of convenience and consequence that is the modern car.

[5] Interestingly, computational discrete choice modelling, such as random utility theory, which is interested in simulating the dynamics of modal choice also recognises the interaction of the person making the choice, the situation and the modal choice alternatives (Schwanen & Lucas, 2011, p. 9). Practically, the number and complexity of the factors that can be accounted for in quantitative modelling are limited, but, conceptually, this reinforces the constitutive, interactive value of travel *emerging between* a triad of person, situation and mode in qualitative research.

1.5 Proposed theoretical framework – Practice theory

Such a conception of utility cycling raises questions about the kind of theoretical lens that may be used to explore cycling for transport in this way. It requires a theoretical framing that is capable of addressing the small, mundane aspects of everyday life, while also encompassing the wider socio-technical context, including a posthuman recognition of a certain amount of material, nonhuman agency.

To attempt such a wide and all-encompassing framing, I turn to the family of theoretical approaches collectively known as 'practice theory' – or 'social practice theory' – because they, too, aim to place single moments of recognisable acting into a performative, recursive relationship with their wider context. The practice lens is often applied to seemingly mundane everyday practices, such as everyday travel by bike, setting the actions involved in the practice into relationship with the diverse array of contextual factors that may both shape, and be shaped by, that action. Framed in this way, everyday travel by bike is seen as much more than simply an intentional individual 'choice' or a technocratic regulatory or infrastructural project. Aspects as diverse as bikes, bags, cars, roads, cycleways, rules, regulations, values, identity, fears, perceptions, skills, daily scheduling and trouser clips are all placed into dynamic relationship.

In short, practice theoretical approaches conceive of social phenomena as being constituted of 'practices'. Practices consist of regular, routinised actions – "the customary, habitual, or expected procedure or way of doing of something" ("Practice," n.d., Def. 2) – that is recognisable enough to earn a name, such as cooking, writing, teaching or building a house. Practices are performative by virtue of each performance of that practice drawing on the material things, skills, meanings and understandings that the practice represents, but at the same time responding to unique circumstances and either reproducing or very slightly altering the overall practice. This conception appears to be well suited to the idea of modal choice occurring at the moment of performance by a person interacting with different modal practices in a wider material and social context.

Practice theory will be discussed in detail in the following chapter, but the implication of such a framing is that, rather than environmental and social issues being seen as the result of deliberate human attitudes or choices, instead they are locked into our *practices* in a material and social world. Such approaches present the challenging proposition that we are constantly producing and then *re*producing the practices that lock in the environmental and social issues we face on a daily basis (Shove, Pantzar, & Watson, 2012). In contrast to models of behaviour change that rely on information

provision and raised levels of awareness to prompt individual behaviour change, practice theories assert that actions of individuals occur within a wider social, cultural, historical and material context. Rather than actions simply being the result of personal choice and intention somehow isolated from the world, for practice theory, it is this situated context that shapes and prefigures what makes sense to do in the moment (Schatzki, 2002).

1.6 Research questions and objectives

This research, then, sets out to examine everyday utility cycling from the perspective of the traveller in the fully embedded in the moment of travelling, situated in the wider social and material context. This leads to the following research questions and objectives:

Research questions

How well does practice theory allow the lived experience of everyday utility cycling to be accounted for in efforts to promote cycling as a mode of transport?

Does a practice theoretical account of utility cycling offer any useful insights into how it may be better promoted as a mode of transport?

What does this research project reveal about practice theory generally and especially its applicability to promoting more sustainable practices?

Research objectives

1. To find or develop a theoretical framework that allows for a performance- or trip-centric perspective of utility cycling, embedded in and responsive to evolving circumstances.
2. To find or develop a theoretical framework that applies specifically to 'behaviour change', especially in an environmental or sustainability context, conceived of as switching, or 'choosing', between already-pre-existing practices.
3. To make recommendations regarding how interventions may be made into everyday transport practices that encourage an increased participation in utility cycling while considering the situated perspective of the everyday traveller.

This work, then, represents a dual investigation into both utility cycling, and the practice lens itself that is being used to investigate it. At the same time as the practice and performance of everyday

utility cycling is being illuminated in a practice theoretical light, that practice approach will itself also be reviewed by the research process. The remainder of this thesis documents that process – a process that takes place in the context of utility cycling in the city of Christchurch, New Zealand.

1.7 Research setting: Utility cycling in Christchurch, New Zealand

> *"Everybody cycles in the ideally flat district: bishops, parsons, telegraph boys, letter-carriers, lamplighters, physicians, merchants, chimney-sweeps, clerks, shop-girls and school children; mothers, who fasten their babies on in front with straps; butcher-boys, who support their baskets on the handle-bars – in short the world and his wife."*
>
> – Max Herz, a German visitor describing Christchurch in the early 20th century in his book *New Zealand* (1912), quoted in *Kennett et al. (2004, p. 26)*

Christchurch, New Zealand – the location for this research – is a city of approximately 400,000 people, located in the middle of the Canterbury Plains, edging against the hills of Banks Peninsula (Figure 1). Historically, Christchurch has been famous as a city of cyclists, even nicknamed 'Cyclopolis' at one time (Kennett et al., 2004). As a low-density provincial city with wide streets, detached suburban houses, a small central business district and relatively free-flowing traffic, Christchurch is well-suited to cycling. In 1924, nearly half of the population of 80,000 people were estimated to be cyclists and in 1936, a traffic census counted 11,335 cyclists – 20 cyclists per minute – passing a point in Cathedral Square during working hours..

However, the same wide streets and low density are also well suited to the speed, independence and flexibility of the private car. As with many cities around the world, by the 1960s adult cyclists had become a rare sight in the city as "'[p]eople began to aspire to four wheels instead of two…[and] a working class stigma came to be associated with the bicycle'" (Kennett et al., 2004, p. 41 quoting a 1979 Christchurch City Council report). Increased vehicle traffic increased the danger for cyclists and, as a result, "adult cycle commuting was reduced to a fringe activity for the truly committed" (Kennett et al., 2004, p. 42). Cycling numbers recovered slightly in the late 1970s and early 1980s, but fell again in the late 1980s with the influx of cheap Japanese used cars.

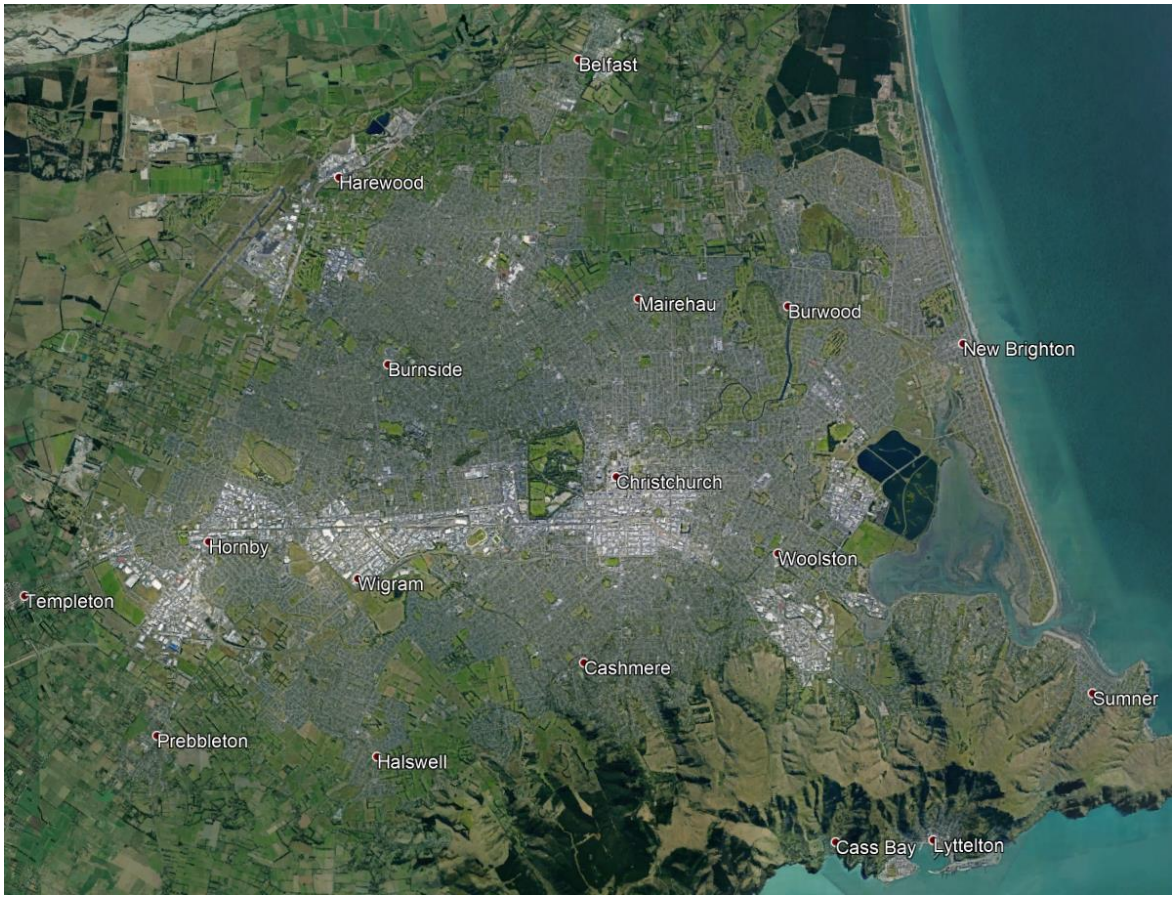

Figure 1: An aerial image of the city of Christchurch, New Zealand. Source: Google Earth. (Imagery ©2020 Maxar Technologies, CNES/ Airbus © Google.)[6]

Overall, today, cycling accounts for around 2.7% of all trips in Christchurch and the car is by far the most prevalent mode of transport, accounting for around 75% of trips and over 90% of distance travelled (Figure 2). The bus, the only form of public transport in Christchurch accounted for only 3.1% of trips. Walking made up 19% of trips but only 2.4% of distance travelled, as it accounts for mostly short trips.

The typical travel times by mode may suggest why it is that the car is so dominant. Although there can be some congestion at peak hours and parking can be limited in the central city, most parts of the city can be reached within 20-30 minutes by car and, the central city can be reached from the satellite towns within 30 minutes, outside of rush hours.[7] Cycling typically takes about twice as long

[6] Complies with Google's non-commercial, fair use with attribution guidelines for Google Earth: https://www.google.com/permissions/geoguidelines/

[7] Source for all estimates in this paragraph: Google Maps. Map data ©2020 Google.

as the car outside of peak traffic times, while the bus is typically the slowest option with low frequency, low patronage and poor coverage away from the main routes.

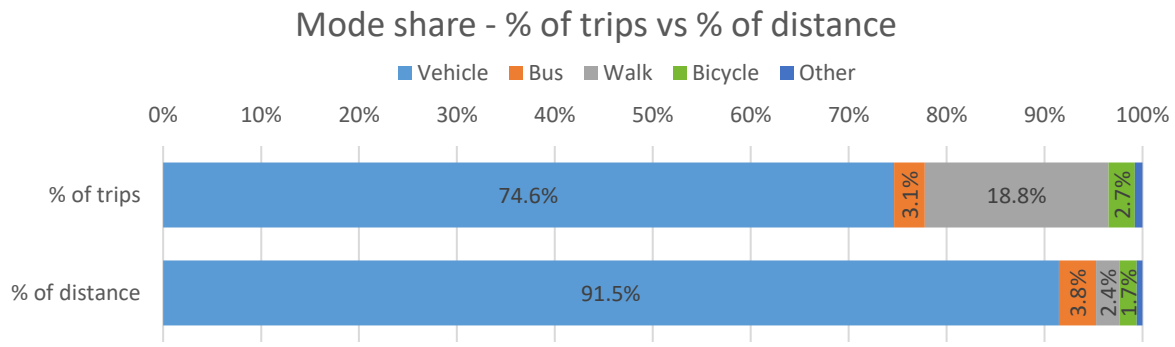

Figure 2: Mode share, by share of trips and share of total distance in Christchurch. Source: Household Travel Survey 2004-2014, Ministry of Transport, New Zealand.

In recent years, Christchurch City Council has committed to a significant project of building 13 'major cycle routes' in Christchurch – a total planned investment of $252 million, shared with central government (T. Law, 2018). At the time of the fieldwork for this research, only one of the routes had been completed, along with some smaller routes in the central city, but at the time of writing in early 2021, four routes have been fully completed with four substantially completed (Christchurch City Council, 2021). In August 2020, further funding was made available by central government as part of a Covid-19 recovery package (Lewis, 2020). In the year until October 2019, a 20% increase in cycling was observed on routes with automated counters (McDonald, 2019).

Despite this considerable investment in cycling infrastructure, however, the car remains dominant in Christchurch. At the same time as constructing the cycleways, $900 million is being spent on extensive new motorways to the north and south of the city (New Zealand Transport Agency, 2021). This is primarily to service rapidly growing satellite towns 20-30 km from the city, which have amongst the highest population growth in the country (Stats NZ, 2013), yet lack significant public transport connections to the city. As a result, many are dependent on the car for transport in greater Christchurch.

Christchurch, then, serves as an interesting case study into utility cycling – as a city once famous for its high rates of cycling, which has succumbed to the dominance of the car, despite retaining many of the features that make it well suited to utility cycling.

1.8 Document outline

The remainder of this document, then, is an exploration of the promotion of utility cycling through a practice theoretical lens, based on research located in Christchurch, New Zealand.

This begins in Chapter 2, with an introduction to practice theory through a review of the literature. Although practice theory is named in the singular, it is in fact a family of related theoretical approaches, so the fundamental aspects common to these theories, along with some of the key differences, will be introduced first. The remainder of the chapter will then go on to specifically review how practice theory characterises social change through practice change. It addresses this by considering how change happens within practices and between practices before considering what practice theorists have to say about how practices may be intentionally intervened in toward sustainable ends.

Chapter 3 then discusses the relatively little that practice theory has to say about its methodological application, and then describes how practice theory was implemented in this research. A broad range of methods and data sources were employed to build a picture of utility cycling as modal 'choice' in Christchurch, including street observations of cyclists, semi-structured interviews with regular cyclists, an account of a one-to-one travel planning programme and its related survey data, supported by Household Travel Survey and Census data. The nature of the analysis through a practice lens is then outlined.

Chapters 4 and 5 go on to present the findings of this research. This is structured into two parts, so that Chapter 4 first describes *when* utility cycling is carried out in Christchurch – i.e., the circumstances under which it is 'chosen' as a mode of transport – while Chapter 5 then considers *how* it is carried out in the context of the other modes – primarily through in-depth interviews with regular utility cyclists. Chapter 4 thematically identifies a range of factors that can be considered to influence modal 'choice', including those that may be considered 'showstoppers' or significant challenges to utility cycling, contrasted especially with the equivalent barriers to driving. Chapter 5 begins with an image gallery of utility cycling in Christchurch as a visual presentation of the practice and then goes on to discuss some of the logistical challenges and personal benefits of everyday cycling and some of the ways in which cyclists vary in how they make it work for themselves on a daily basis.

These findings are then discussed in light of the practice theoretical literature in Chapter 6. The role of the eponymous practice 'entity' as the primary 'unit of analysis' of practice theory is first called into question with respect to its utility in this particular research setting, which was found to sit resolutely

between practices. Also, the fundamental challenges of intervening in what people do via the practice idiom are discussed. In response, I propose a 'practicescape' approach in three analytical moves which offers an analytical framework for a more general application of practice theoretical principles to situations where the promotion of one pre-existing practice over another is the desired end, especially with sustainability in mind. The final chapter, Chapter 7, then concludes by considering the implications of this research for practice theory itself, and then for the practical promotion of utility cycling as a mode of transport.

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2. Theories of social practice

This work opened by highlighting calls for significant and urgent sociotechnical change in response to a number of global crises, using the promotion of utility cycling as an example of such a change. It called for approaches that transcend and integrate the dualistic extremes of rational individual agency and technological determinacy common in the transport literature, by recognising the complexities of the lived experience of everyday life. Theories of social practice – usually known as 'practice theory' – were proposed to meet this brief. This chapter, then, asks how practices relate to social change, especially with respect to the lived experience of everyday life.

The chapter explores how change may be expressed through practices. Practice theory constructs the social world from fields of practices, therefore, any change in that social world must be translated in terms of changes in that field of practices. From this perspective, questions of change are not straightforward and demand significantly more attention than more simplistic linear assumptions like those outlined in the previous chapter. Even single practices offer a complex recursive, performative dynamic at their core, and then, each individual practice also exists in dynamic relationship with yet more practices.

The first aspect of change considered here concerns change *within* practices – how practices change internally. Practices by their nature already exist in a state of dynamic epistemological tension – a practice entity as a particular 'way of doing things' has a complex and indeterminate relationship with all of the individual performances that represent it. Each performance is uniquely adaptive to the circumstances in which the actor finds themselves, yet, somehow comes to represent and draw on the resources of the practice – perhaps while minutely shifting that practice at the same time. This dynamic between individual performance and practice entity has important implications for the ways in which practice change can be considered.

No practice exists in isolation, however; practices always exist within a dynamic context of yet more practices. This means that change through a practice theory lens must also consider relations *between* practices. Practices always interact with other practices – some may reinforce a particular practice while others may hinder it – meaning that change, or lack of change, may come about from the ways practices relate to each other. For example, utility cycling may compete with driving, while the demands of other daily practices reinforce the current modal share potentially making change more difficult.

These complex dynamics that the practice idiom offers also have significant ramifications for governance and intentional intervention in social practices. It means that change and intervention is a more complex prospect through a practice lens – although, it could also be argued that this more accurately reflects the true nature of the change involved. A number of authors have grappled with the question of how to intentionally intervene in such a dynamic and interrelated domain, where single, causative levers of change remain scarce and instead, indeterminacy and even uncertainty around the direction of causation abound. Practice theory eliminates the sanctuary of a safe, external vantage point for advocates and policymakers, and very different forms of intervention are required.

In this chapter, the fundamental aspects common to most practice theories will be introduced first, before considering how practices change from within, and then how they change between practices, through interactions with other practices. The chapter will conclude by considering the implications of these dynamics for changemakers hoping to intervene in everyday practices and then, applied specifically to utility cycling.

2.1 What is practice theory?

> "Practice theory is… a loose, but nevertheless definable movement of thought that is unified around the idea that the field of practices is the place to investigate such phenomena as agency, knowledge, language, ethics, power, and science. Despite this shared conviction, practice thought encompasses multifarious and often conflicting intuitions, conceptions, and research strategies." (Schatzki, 2001a, pp. 13-14)

The broad family of practice theories is distinguished from other social theories by the ontological position that the social world is in some way constructed by and/or located in the field of practices – in routinised performances of human actions within a complex array of materials, agents and other practices and performances (Schatzki, 2001a, 2016c). Despite often being referred to in the singular, there is no single unified 'practice theory', rather, a family of related theoretical approaches perhaps better referred to as a practice idiom – or standpoint, lens or approach (Nicolini, 2012). The family of practice approaches forms a shifting and "complex landscape" (Cox, 2014, p. 1511) that risks lacking theoretical coherence (Rouse, 2007), however, there are broad commonalities (Gherardi, 2016) that at least represent a family resemblance (Nicolini, 2012, p. 214).

These ideas are held together by the performative notion that the social is composed of embodied practices, embedded in a material world. Schatzki (2001a) identifies a "central core" of practice theorists who conceive of practices "as embodied, materially mediated arrays of human activity centrally organized around shared practical understanding" (p. 2). Despite these uncertain theoretical

parameters, these practice approaches have proved capable of yielding "distinctive and defensible empirical analyses" which have "shed fresh light on social processes" (Warde, 2014, p. 285).

The idea of 'practice' has long existed in social theory as a broad concept widely used in philosophy and social sciences (Rouse, 2007), which is unsurprising given that practices are "almost unlimited: anything people do" (Ortner, 1984, p. 149). The work of a number of earlier scholars set the scene for the development of fully-fledged theories of practice. Marx re-elevated the practical and the pragmatic to a more equal standing with the 'purer' intellectual pursuits of universal scientific principle and human mentality (Nicolini, 2012). Wittgenstein and Heidegger helped to move conceptions of social phenomena beyond the purely mental and intentional into the realm of human activity – what people *do*, rather than merely what people think or intend (Chia & Holt, 2006; Nicolini, 2012; Rouse, 2007). Giddens' and Bourdieu's early theorisations of practice offered frameworks whereby practices could play a role in the constitution of society, as linking the individual and the structural (Giddens, 1984) and to explain the practical navigation of everyday life (Bourdieu, 2005). The movement of social phenomena beyond the individual was extended by science and technology studies (STS) scholars such as Latour to also include the non-human and material as participants in social life, in a dynamic, performative dance (Nicolini, 2012). It was on these intellectual foundations that more complete theories of social practice could be constructed.

Ortner (1984) was one of the first to recognise and name the emergence of 'practice theory'. This family of approaches represents the relatively recent coalescing of ideas relating to the role of practices in understanding and constituting the social – a "practice turn" (Schatzki, Knorr Cetina, & von Savigny, 2001) or "bandwagon" (Corradi, Gherardi, & Verzelloni, 2010). Theodore Schatzki was one of the earliest contemporary practice theorists to attempt a comprehensive theory of practice, drawing especially on the work of Wittgenstein and, to a lesser extent, Heidegger (Schatzki, 1996). The eponymous turn toward practice in the collection of essays *The Practice Turn in Contemporary Theory* (Schatzki et al., 2001) may not have yet eventuated to the extent hoped, but that publication did mark the emergence of a "diffuse movement" (Shove et al., 2012, p. 6) of practice-centric scholarship.

Practice approaches emerged to a large extent to offer an alternative to more dualistic, static and hierarchical traditions such as individualism, humanism and structuralism (Feldman & Orlikowski, 2011; Reckwitz, 2002b; Schatzki, 1996, 2002). Reckwitz (2002b) contrasts practice theory, and its focus on practices rather than people, with "culturalist mentalism" that locates the 'social' in the minds of human beings, "textualism", where the social resides in symbols, discourse or texts (p. 248) and

"intersubjectivism", which locates it in interactions between people. These traditions rest on "irreducible dualisms" that ontologically separate "actor/system, social/material, body/mind, and theory/action" into separate levels of existence (Nicolini, 2012, p. 2). The danger of such dualistic conceptions of the social is that they can result in idealistic and highly intellectualised positions, based on a "disengaged subject" separated from the practical considerations of the world in which they find themselves (Reckwitz, 2002b). By contrast, the relational or 'flat' ontology of practice theory resists such separation and seeks "to dissolve (rather than resolve) such enduring dualisms" (Nicolini, 2012, p. 3). Practice theorists aim to 'dissolve' these intellectually convenient and relatively isolated positions by plunging human intention and agency into complex, dynamic arrangements of people, bodies and things. Therefore, practice theory, by challenging these historically dominant intellectual underpinnings, may be able to offer a fresh and valuable perspective on utility cycling as it is experienced by the traveller in the moment of action, as outlined in the previous chapter.

Practice approaches are united by a performative recognition of practices (Strengers, 2013, p. 7) as the central, constitutive 'unit of analysis' through which to investigate social phenomena (Spaargaren, Lamers, & Weenink, 2016). From this perspective, the 'social' is constituted of practices, as some type of routinised human activity interacting with the wider nonhuman, material world, including other practices:

> "The social site […] is composed of a mesh of orders and practices. Orders are arrangements of entities (e.g., people, artifacts, things), whereas practices are organized activities. Human coexistence thus transpires as and amid an elaborate, constantly evolving nexus of arranged things and organized activities." (Schatzki, 2002, p. xi)

Schatzki further describes a practice "as a temporally unfolding and spatially dispersed nexus of doings and sayings" (Schatzki, 1996, p. 89), thereby suggesting the importance of "the mundane activities of everyday life" (Warde, 2014, p. 287) in the way the social world hangs together. In a recent "very general definition" of practice theories generally, Reckwitz (2017) succinctly summarises many of the key, typical dimensions of practice theoretical consideration:

> "The […] main tenet is to seek the social in practices, in embodied routine activities subtended by implicit, collective knowledge. It is for this reason that practices belong to the realm of the genuinely social, at the same time as they are anchored in the bodies of individuals and act through them. Further, because the social practices depend on implicit schemes of knowledge, they are always cultural practices. And because they are anchored in bodies and in artefacts connected with bodies in specific ways, they are also always material practices. The social world consists then of more or less repetitive performances of doings and the widespread complexes which theses *[sic]* practices form." (Reckwitz, 2017, p. 114)

Here, Reckwitz concisely argues that the social exists in practices, held together by embodied performances, forms of knowledge and interaction with the material realm. Those practices then form complex bundles interacting with other practices. In an earlier overview of practice theory (Reckwitz, 2002b), he also identified as significant factors: the role of the individual mind and individual agency, discourse and language and the structure and process of social reproduction. This emphasis on practice is a movement away from individual and human designs, out into "doings and sayings" in a material word. It "'decentres' mind, texts and conversation [and] [s]imultaneously, it shifts bodily movements, things, practical knowledge and routine to the centre of its vocabulary" (Reckwitz, 2002b, p. 259). To these aspects, Schatzki (1996, 2002) would add "practical intelligibility", which brings a sense of 'what makes sense to do' and practical coping into the mix.

Nicolini (2017b) offers a similarly broad 'definition' that ties together the aspects that practice approaches take into account, but also describes the performative nature of practices as places of constant making and remaking of the social world:

> "[T]he appeal of the practice-based approach lies in its capacity to describe important features of the world we inhabit as something that is routinely made and re-made in practice, using tools, discourse and our bodies. From this perspective, the social world appears as a vast array or assemblage of performances made durable by being inscribed in skilled human bodies and minds, objects and texts and knotted together in such a way that the results of one performance become the resource for another." (Nicolini, 2017b, p. 20)

Practice approaches respond to an intuitive sense that the world is processual and in a constant state of flux due to its complex, interconnected nature, thereby "explaining social phenomena in a processual way without losing touch with the mundane nature of everyday life and the concrete and material nature of the activities with which we are all involved." (Nicolini, 2012, p. 9). It emphasises the enacted, material, situated and embodied over the universal, individual or rational.

Practice theories mobilise conceptions of the social, launching the embodied individual into action, getting by in a material world in a dance with other entities also in motion. What once appeared static, intentional and predictable is cast into life as it is lived *in practice*: "emphasis is placed upon doing over thinking, the material over the symbolic, and embodied practical competence over expressive virtuosity in the fashioned presentation of self" (Warde, 2014, p. 286). As a result, "thinking" becomes grounded in "doing", "knowing that" becomes the more practical "knowing how", rational decisions become dispositions and the symbolic solidifies into the material. These examples move the centre of attention outward from the intentions of a detached, sovereign individual and into a material world of doing and saying and collective disposition.

Presented in such a way, practice theory appears to accommodate the idea of utility cycling as an emergent phenomenon arising between person, mode and trip context. It suggests that the macroscopic form of cycling, conceived of as a practice, could well be shaped by the daily lived experience of people heading out their doors, just trying to get where they're going, faced with a specific situation and a choice of transport modes.

Table 1 summarises some of the key factors held in common by most contemporary theorists. In the first section, practices constitute a performative ontology where practices must be continually performed in order to endure within fields of other practices and in doing so shape future doing (Schatzki, 2002; Shove et al., 2012). The performances are at the same time an instance of the practice as an entity, drawing upon its resources, and a unique response to an individual situation (Reckwitz, 2002b; Shove et al., 2012). The performances produce and then reproduce the practice, but always imperfectly and incompletely, leading to potential change in the practice (Schatzki, 2002). This ontology is both temporal and spatial, with the same dynamics producing and reproducing practices historically and geographically (Schatzki, 2009, 2010; Shove & Pantzar, 2005b; Shove et al., 2012). At the same time the ontology is 'flat', meaning that practices exist within their own context of other practices, without requiring recourse to external or universal structural elements (Blue & Spurling, 2017; Schatzki, 2016c).

The second section of Table 1 shows that practice entities become more than just the sum of their constitutive performances and are organised and constituted in some way by a range of aspects. Practices embody certain normative ends, emotions or meanings, usually with collective and historical components that encompass practical knowledge and understandings (Barnes, 2001; Rouse, 2007; Schatzki, 1996; Shove et al., 2012). Material things, including the human body, also play a key role in anchoring and shaping practices (Reckwitz, 2002a, 2002b; Shove et al., 2012). For theorists in the Heideggerian-Wittgensteinian tradition (especially Schatzki), these aspects apply performatively through the mechanism of practical intelligibility, or what makes sense to do in the moment of acting (Nicolini, 2012; Schatzki, 1996).

This conception of a social world constituted in practices then has implications for the way that social phenomena are represented, as summarised in the final section of Table 1. Importantly, the individual is decentred (to varying degrees) meaning that knowledge, meaning and discourse are not seen to reside solely within the minds of people, but instead exist 'out there' in the field of practices, where

Table 1: An overview of the key principles of practice theoretical ontology

Performative ontology: A 'flat' social ontology where social phenomena are constructed by and performed by practices, and practices are the central 'unit of analysis' (rather than individuals or social structures), i.e., what people do and the organisation that that performs. The consideration and definition of the shape of the practice and the practice landscape is a key part of any practice analysis.

- **Performative:** Practices must be performed to endure and through that doing shape further doing
- **Subcomponents:** Practices order a number of smaller subcomponent activities and tasks
- **Dynamics of (re)production:** Practices are in a constant state of becoming: both stability and change are an ongoing accomplishment of (re)production through performance. Performances draw on the resources of the practice, while at the same time adapting to the situation – part repetition, part unique adaptation
- **Translocal accomplishment:** Practices persist across time at different locales, yet must be locally performed to become historically situated
- **Practice entity:** An entity recognisable as a practice emerges, becoming greater than the sum of its constitutive performances and a resource for future performances
- **Fields of practices:** Practices interact with and exist within a backdrop of other practices and must always be considered in light of the web of other practices with which they interact.

Constitutive/ organising principles: Aspects of practices to be kept in mind in any practice analysis.

- **Practical intelligibility:** Theorists in the Heideggerian/ Wittgensteinian tradition see what makes sense to do as the central, animating aspect of practices.
- **Ends and emotions (teleoaffective structure):** Practices acquire sense because they are directed toward some kind of object or end that is meaningful for people
- **Normativity, collectivity and rules:** Practices are maintained by a constituency that produces and reproduces it and norms of 'correct' and 'incorrect' practice develop collectively. These can become enshrined in written or unwritten rules.
- **Practical understandings, competences:** Skills and abilities required to perform the practice
- **General understandings:** Practices can express or result from social/cultural conventions, such as a work ethic, ideological conviction, individual freedom or community cohesion.
- **The material:** The role and nature of the nonhuman, material realm is central to practices, with practices and practical knowledge existing within the texture of things, people and what they do, not exclusively within the mental or human realm.
- **The body:** A special case of the material, practices are routinised bodily accomplishments, often pre-reflexive and unarticulated, with the practice performed by way of physical enactment.

Special implications: The ontology and elements outlined above affect some key social phenomena.

- **The individual:** Theories of practice decentre the practitioner as a player in the practice assemblage, with varying degrees of emphasis and agency in different accounts.
- **Knowledge, meaning and discourse:** Knowledge exists 'out there' in the practice web, not within the individual or collective mind. Meaning and identity are performed within the field of practices, with discourse a part of, and not separable from, practice.
- **Everyday timespace:** Practice theory frequently focuses on the consequential, but often mundane and routine, bodily performances of everyday life and how they coordinate daily timespace.
- **Scale:** Practices account for and operate over large and small spatial and temporal scales, including, large institutions as well as small everyday activities
- **Power:** Given their far-reaching nature within human affairs and their dynamic spatio-temporal nature, practice assemblages empower certain courses of action over others.

humans are not the sole players (Alkemeyer, Buschmann, & Michaeler, 2017; Reckwitz, 2002b; Watson, 2012). As a result of the performative foundations of practices, the 'everyday' of small, mundane aspects of daily life are a key focus (Shove, Trentmann, & Wilk, 2009; Warde, 2014) – and in that way practices are seen to account for all scales from the micro and mundane to the macro and wide-ranging (Nicolini, 2017a; Schatzki, 2016a). Power can also be conceived of through such dynamic assemblages (Jonas & Littig, 2017; Watson, 2017).

Of special importance to utility cycling and transport practices amongst these aspects of practice theory are the performative ontology of performances, practice entity and fields of practices. Each trip can be seen as a performance and each mode as a practice entity existing among many other everyday practices. Of the organising aspects practical intelligibility and ends and emotions are especially relevant to attempting to understand the lived experience of everyday transport at the trip level. The materiality of roads and conveyances also play a starring role, alongside the physical, embodied nature of cycling and travel. And, finally, as discussed in the introduction, the role of the individual and individual agency is a very central consideration to contrast with standard behavioural approaches. These aspects will be discussed in more detail in the remainder of this section.

2.2 How change happens within a practice

> "[T]the constant flow of human and nonhuman doings, in addition to altering practices, maintains them. Human activity maintains a practice when it carries out bodily doings and sayings that (1) already constitute the practice and (2) express extant elements of the practice's organization. Clearly, much human activity accomplishes this. Activity can also, however, recompose and reorganize practices." (Schatzki, 2002, p. 240)

Practice theory is often applied to attempts to change practices, especially for environmental reasons, where unsustainable practices are to be discouraged in favour of more sustainable alternatives (e.g., Shove & Spurling, 2013; Strengers & Maller, 2012; Warde & Southerton, 2012). Given that practice theory situates the social within fields of practices, then social change from a practice perspective must correspondingly involve changes in practices. Such change can come about through either changes in the internal dynamics of a single practice – *within* practices – or through shifts in the relationships *between* practices – or both. Practices, by their nature, are in a constant state of dynamic flux, therefore, concepts of 'change' – especially intentional change – within a practice ontology are quite different to linear assumptions associated with rational individual agency or technological determinism. Within the complex dynamics of practices, causality, and even the direction of causality, remain uncertain and indeterminate. The flat ontology of practice theories does not allow a privileged

external position to any actor, including policymakers and advocates, therefore any attempts at intervention within a field of practices is fully implicated within those dynamics. As a result, the outcomes of interventions may be unpredictable and difficult to determine. This section, begins this consideration by focusing on the dynamics of change within a single practice, while the next will consider how change can occur between practices in the wider field of practices.

Within-practice change relates especially to the relationship between an individual performance of a practice and the wider practice 'entity' that comes to be recognisable from any such performances. The recursive[8] dynamic of practices has the practice entity shaping each instance of performance of that practice, even as that performance responds and adapts to a situation which is entirely unique. Practice and performance are said to be "mutually constitutive" (Feldman & Orlikowski, 2011) because it is the doing of the practice that holds the elements of the practice entity together, while at the same time those elements shape that doing and make it possible. Shove et al. (2012) explain that

> "practices exist as *performances*. It is through performance, through the immediacy of doing, that the 'pattern' provided by the practice-as-an-entity is filled out and reproduced. It is only through successive moments of performance that the interdependencies between elements which constitute the practice as entity are sustained over time." (Shove et al., 2012, p. 7, emphasis in original)

This performative dynamic between individual 'doings and sayings' that are instances of the practice, and the practice entity itself, is the engine room of practice theories and is, therefore, central to any consideration of how a practice may change. It is a process of constant production and reproduction of a practice, which has implications for how change is conceived of for practices (Shove et al., 2012). In this way, the ontology of practice is *performative* – in that the performances perform their own realities into being (Strengers, 2013, p. 7) – and even an apparently 'static' practice is in fact reflecting the same underlying dynamics as a 'changing' one. Practices exist in, and *as*, a perpetual state of flux and can only exist, and persist, if the activities that constitute them continue to occur (Schatzki, 2013). Therefore, change is not something that *happens to* practices, rather, dynamism is *inherent* to practices.

Talk of practices 'changing' can actually incorrectly reinforce static and more concrete representations of practices that belie the state of continual dynamic reproduction inherent to practices: a practice

[8] Recursive meaning that the aspects involved refer only to themselves in a 'circular', self-referential manner.

can only 'change' if its state as some kind of entity is static and identifiable in the first place. Such a focus risks resorting to language of static entities and seeking out definitions and boundaries (Nicolini, 2017b). Schatzki (2002, pp. 254-256) refuses to distinguish between stability or change, or continuity and discontinuity, with respect to practices. First, because the field of practices is in a constantly dynamic state of "becoming", so, apparent stability or change is simply the same dynamic reproducing itself in the same form or a different form. But second, change also implies a clear definition of a practice that has changed. What might be considered as change in the practice entity is highly contingent on the particular research setting and priorities and therefore not a universal concept: a practice may appear as stable to one person in one context and changing to another. The question then, is not whether the practice is static or changing, but rather whether the constant dynamics of the performance of the practice continues to reproduce the practice in much the same way as before, or in a different form. If the change in the organisation of the practice is slow then it appears to be stable, if it is rapid then the practice is said to be changing, but the underlying process of constant activity and organisation is the same in each case.

Practice theory characterises change as occurring between the unique adaptation to circumstances performed by the individual in a moment of acting and the resources of the practice entity that have emerged from past instances of such acting. The practice entity offers some level of intelligibility to the performance, yet the performance is always an adaptation and a unique response to the exact situation that is being experienced in space and time. "Its accomplishment is neither mindless repetition nor complete invention" (Nicolini & Monteiro, 2017, p. 114). Each performance draws on the significations of performances that have gone before and the accoutrements they have gathered around them in order to respond to the unique setting (Schatzki, 1996, 2002).

> "[A]ll practices are different each time round – they are inherently local and accomplished each time for the first time. The puzzle for social scientists is that of explaining the apparent similarities of practices in space and time rather than their differences." (Nicolini & Monteiro, 2017, pp. 113-114)

It is this co-constitutive nature of practices as performance and entity that keeps practice theorists awake at night. How is it that a recognisable entity can emerge from performances where *none* of those performances in itself fully represents the practice itself and is in fact a localised response to a particular situation? How can performances be completely uniquely situated in space and time, often as an instinctive, pre-reflexive response to unique circumstances, while at the same time being recognisable as a particular assemblage of actions and things across times and locales? And, most

importantly with respect to questions of change, how might it be possible to intervene intentionally in such an elusive relationship?

The challenge practice theories face is that they try to unite two extremes of theoretical debate, where either overarching social structures are seen to presuppose action (practice-as-entity), or individual action is said to presuppose structures (practice-as-performance). This construction is theoretically powerful, however, it brings with it a fundamental ontological and epistemological tension that can create difficulties for potential change-makers.

Epistemologically, the issue is that both the performance and practice entity perspectives cannot be observed at the same time. Alkemeyer et al. (2017) notes that individual performances can only be seen as part of a practice entity when viewed from afar, so that the actions can be seen in the context of practice wholes. However, from such a 'zoomed-out' vantage point, the perspective of an individual responding to a unique situation is lost. However, on the other hand, 'zooming in' so that the individual experience of the moment of acting is visible means that the 'zoomed-out' perspective of the practice entity as a whole is lost. Only one such perspective can be analysed at a time, and this has epistemological implications for engaging with any practice: each perspective is necessary, but each involves a very different way of knowing or observing the practice. Like Nicolini's 'zoom in', 'zoom out' approach (Nicolini, 2009b, 2012), Alkemeyer et al. (2017) propose a methodical switching between the two perspectives to ensure both are appropriately accounted for.

Ontologically, the challenge relates to the very different nature of performance and entity. At its core, practice theory is based upon performances – actions, things people do – yet it also attempts to associate these doings with entities consisting of elements. One is verb-like – based on *doings* – and the other a noun-like – consisting of a set of concrete and abstract *things*, or entities. Doings and things each have very distinctive ontologies, even involving different parts of speech. This construction has the individual, adaptive actions of individuals in unique situations – doings (verbs) – taking place within a practice context – consisting of things, or nouns: elements, such as material artefacts, bodies, emotions, meanings, skills, norms, etc., and other practice entities. This verb-noun distinction between performance and practice entity is not explicitly named in this way in the literature, but is strongly emphasised in many formulations. The "practice-as-performance"-"practice-as-entity" distinction of Shove et al. (2012) is essentially precisely this distinction, but without drawing attention specifically to the action/entity-verb/noun aspect. And Shove et al.'s distinction was drawn from Schatzki's "nexus of doings and sayings" – a "nexus", or entity, that emerges from what people do and say (Schatzki, 1996, p. 89). Nicolini similarly emphasises the processual and performative nature of

practices by referring to them as "regimes of activity" (Nicolini, 2017b; Nicolini & Monteiro, 2017), where it is the activity itself that is recognised as central to the "regime", the entity.

Maintaining this distinction between performance and practice entity is important, because it is the recursive relationship between the two that keeps practices alive as dynamic entities that may change or be changed. This co-constitutive nature of practices means that they evolve as entities along an "uneven front of change" (Schatzki, 2015, p. 26) or of "surface of emergence" (Pickering, 1995) – an evolutionary process of localised performance, building upon the traces of past performance, while also shaping the practice for future performance. Schatzki (2002) emphasises that practices exist by virtue of their ongoing performance and "endless becoming":

> "[A]n account of the social site is inherently one of ceaseless movement and incessant rearrangement and reorganization. […] The doings of humans and nonhumans combine to make the social site the scene of continuously metamorphosing orders and perpetually performed, and often evolving, activities." (Schatzki, 2002, pp. 189-190)

Shove et al. (2012, p. 7) describe this relationship between the performance and the practice entity as "recursive", meaning that the practice depends on the performance in some way, but the performance also depends on the practice, which in turn depended on earlier performances, which depended on the practice at the time, and so on, in a circular, self-referential, 'chicken-and-egg' manner. Through this conception, practices stabilise when past performances ease the way for future performances in some way – the practice being the emergent 'entity' that somehow results from the past performances. Practices change, on the other hand, when the performances begin to change in some way in response to changing circumstances, thereby shifting the related practice in some way.

Change within practices, then, can be considered in two key directions: practice entity shaping performances in some way, and performances shaping the practice entity in return in some manner. The nature of these relationships is far from straightforward and remains somewhat elusive and mysterious in both directions. However, practice theorists have devoted far more attention to the former aspect – the shaping influence of practice entity over performances – than the latter. The means by which performances might shape their practice entity remains largely unexplored, despite the importance of this dynamic in accounting for how practices change. The remainder of this section will first explore how the practice entity shapes performance, then consider the role of the individual as a middle ground between performance and entity, before addressing the less-considered reverse direction of how performance shapes practice.

2.2.1 How the practice entity shapes performance

Of the recursive relationship, said to occur in both directions between performance and practice entity, it is perhaps the shaping influence of the practice entity over individual performances that is most thoroughly canvassed in the practice theory literature. This considers how the practice entity may come to shape individual instances of its performance. A 'practice' (entity) arises when a set of performances becomes recognisable in some way such that traces of past performances can be drawn upon as a resource for future performances by other practitioners. These resources of a practice entity can exist on multiple levels, such as personal experience and skill, transferable knowledge, power relations, tools or specially configured spaces. There is some level of organisation of the performances that characterises them such that a collective, historical and normative pattern with a particular cohort of practitioners and arrangements of material artefacts emerges that can be named and distinguished discursively, even if not clearly defined and bounded (Schatzki, 2002).

In his oft-quoted definition, Reckwitz (2002b) describes a practice as a "routinized type of behaviour" that brings together a diverse range of "elements" into some kind of "block", or entity:

> "A 'practice' (Praktik) is a routinized type of behaviour which consists of several elements, interconnected to one other: forms of bodily activities, forms of mental activities, 'things' and their use, a background knowledge in the form of understanding, know-how, states of emotion and motivational knowledge. A practice – a way of cooking, of consuming, of working, of investigating, of taking care of oneself or of others, etc. – forms so to speak a 'block' whose existence necessarily depends on the existence and specific interconnectedness of these elements, and which cannot be reduced to any one of these single elements." (Reckwitz, 2002b, pp. 250-251)

Shove et al. (2012, p. 7) cite this passage as inspiration for their model of a "practice-as-entity" as a "conjunction of *elements*". They offer an intentionally simple, but flexible, categorisation of elements as "material, competence, and meaning" (Figure 3). These elements are "integrated when practices are enacted" (p. 21), meaning that it is the doing at the centre of the practice that integrates the elements into an entity. It is an important point, however, that these elements should not be conflated with the practice itself. The elements themselves do not *constitute* the practice, rather, they are woven together into a kind of "block" by the doing itself, thereby underscoring Nicolini's emphasis on practices as practis*ing*, or "regimes of activity" (Nicolini, 2017b; Nicolini & Monteiro, 2017).

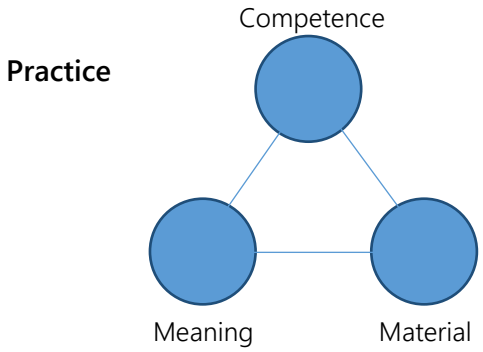

Figure 3: A diagrammatic representation of the elements of a practice (as per Shove et al., 2012).

The practice entity that emerges represents more than any single performance or aspect of the practice can represent. No one person or organisation can represent all that is 'utility cycling' as a practice, or system of practices (however characterised), yet at the same time there is still something that can be called 'utility cycling' and recognised as such (Schatzki, 2003, 2012). It contains ends, emotions, meanings, materials, material cultures, skills, experience, expertise, etc. that are more than any of its constitutive performances. The practice becomes something bigger than its parts, and people and their performances become part of the practice, rather than the converse.

Nicolini (2017b), after resisting definitions of a practice in earlier works, offers a "quasi-definition" that reflects this foundational construction of practices as sets of performances, mediated by materials and other practices that gather a normative dimension around themselves that endures over time:

> "To preserve the inherent processual nature of the practice approach, I prefer to conceive practices as regimes of a mediated object-oriented performance of organised set of sayings and doings. We call these performances 'practices' when they have a history, social constituency and hence, a perceivable normative dimension. In my quasi definition, historically situated performance and the resources that go into producing and accounting for them is the basic building block of a practice-based approach." (Nicolini, 2017b)

A practice emerges as some kind of *entity* from amongst the constitutive performances, described earlier, that structure or organise those performances. The practice entity is important because it represents what it is that remains between moments of performance (Shove et al., 2012, p. 128) – almost as a kind of 'scaffold' for future performances. Like a path worn by those who have travelled that way before, it is the path that remains even when no one is travelling it. It represents the route that many have taken through the landscape to a particular destination, and clears the way for others that wish to follow the same route. In the world of practices, the practice is a similar clearing of the

way for certain sets of activities: "practice carries the possibility for action and opens spaces for people to occupy such spaces and take action (or not)" (Nicolini, 2012, p. 178).

Each time a set of actions is performed, it makes it a little easier for the same actions to happen again, if it recurs within a useful time and distance from the original performance. Over time, this set of actions, and especially the context in which they are performed, becomes recognisable to others as a practice and shapes future action in a recursive manner (Shove et al., 2012). Eventually, physical tools and artefacts along with human skills, experience, meanings and social significance coalesce around the practice, anchoring it and embedding it within a complex web of other practices. For example, in the pioneering days of the bicycle, anyone interested in cycling might have had to build a bike, learn to ride it and to explain to others what on earth they were doing and why. Today, bikes, their equipment, the skills to ride one and recognition of the practice can be taken for granted (de la Bruheze, 2000; Geels, 2005; Shove, 2012c). Driving has gone through a similar genesis and evolution. Each practice has grown to represent a clearly recognised form of continual, collective doing that can be relied upon to continue to exist in some shape or form, even when not in fact being performed.

This recursive construction is a simple circular logic that is at once dynamic, yet also involves strong path dependencies (Schatzki, 2010, p. 215; Shove, 2003). The other side of the coin is that as performances stabilise a practice, making further performances of that nature easier, the same process may make alternative performances outside of the accepted remit more difficult. Extending the example of cycling and driving, while these modal practices have become optimised over many years, alternatives such as horses or novel modes of transport have become more difficult on roads designed primarily for driving, and to a lesser extent cycling.

In this way, the practice entity then forms a *normative* unit in the eyes of most contemporary practice theorists – as a means through which the practice entity may regulate its performances.

> "[T]he entirety of a practice's organization is normative […] what specifically and unequivocally should be done or said (when, where…); and which ends should be pursued, which projects, tasks, and actions carried out for that end, and which emotions." (Schatzki, 1996, p. 101)

This is the 'social' in social practice theory (Nicolini, 2012, p. 227). In order to define a practice as a 'way of doing' something requires a clear social understanding of what characterises that 'way of doing' – the practice adjudicates on 'right' and 'wrong', or 'acceptable' and 'unacceptable' performance of a practice. Barnes (2001) exemplifies this dynamic well with respect to the practice recognised as 'acupuncture':

> "Not every well-intentioned prod with a needle is acupuncture: some prods fall outside the practice, some are more or less adequate expressions of it, some few may be so remarkable that they play major roles in extending existing conceptions of what the practice is." (Barnes, 2001, p. 25)

For Shove et al. (2012, pp. 99-105) it is the "monitoring" of practices which determines whether an individual performance is considered within or outside of the conduct of a practice, as well as the ways in which the practice entity stabilises such considerations at the performance level. This strong normative position implies a clear teleoaffectivity to practices, where there must be a reason for engaging in it: "these patterns of interaction must constitute something at issue and at stake in their outcome" (Rouse, 2007, p. 671). This allows individual performances to be measured against their perceived success or otherwise in addressing those stakes.

This applies whether the practice is seen as clearly defined, as per Schatzki (2002) and Shove et al. (2012), for example, or seen as fluid and contingent, as per Nicolini (2017b): all of these authors are united in looking for the means by which the practice is performed and held together in the way it is and not some other way. This places an emphasis on aspects such as norms, teleoaffectivity, rules and monitoring of and learning of correct and incorrect performance, which are important in determining why a practice is one way and not another. So, a key question – perhaps *the* key question for practice theories – is how performances of a certain variety can come to be recognised as a 'practice': what it is that elevates the many individual performances of a set of actions to the status of a practice (Nicolini, 2017b).

It is worth noting at this point, however, that although I have referred to 'the' practice entity, the existence of such a singular entity can be called into question. Part of the challenge of practice theory can be conceiving of the types of singular practice entities that Schatzki and Shove favour. Nicolini (2012) criticises Schatzki's precise definitions of practices as being too singular, "guilty of providing a story that is too closed and conclusive – a plot about the world rather than a method for emplotting it" (p. 218). He prefers a much more eclectic, pluralistic perspective of practices that provides a "vocabulary" or "toolkit" for providing richer and thicker descriptions of the complexity in the world. But Nicolini (2012) emphasises that this process is as performative as the practices it is investigating, and in fact the practice of research itself interacts with the practices being studied, and needs to be carefully untangled from the practice in question (Nicolini, 2009a). While recognising the primacy of

practice to practice theory, Nicolini does not favour a strong emphasis on definitions of clearly bounded practice entities, instead preferring a processual and empirical emphasis:

> "(a) we are studying the re-production of performances, not the construction of things (asking what is the boundary of a performance does not make sense) and (b) what is the boundary of a practice; when a practice becomes something else is an empirical not a theoretical questions *[sic]*" (Nicolini, 2017b, p. 29)

For Nicolini (2009b, 2012, 2017b), the performative role of a practice entity is the generation of questions, rather than answers. The practice becomes an epistemic object – an "open, question-generating and complex" object (Knorr Cetina, 2001, p. 181) whose dynamic, contested, constantly shifting form can never be fully defined, yet attempts to do so also inspire ongoing investigation into its nature. Practice theoretical research is a *process* and the practice a dynamic entity that can never be completely or absolutely resolved in any context-independent sense. While Nicolini sees the practice entity as a useful tool for suitably skilled researchers, he also sees a significant risk that others begin by looking for

> "complex architectures of practices that they then need to put in motion – with the potential consequence being that the distinction between a structure and process that we were trying to throw out of the door re-enters through the window" (Nicolini, 2017b, p. 30).

Hui (2017, p. 55) presents the example of making a sandwich and how a range of different performances involving fillings and slices of bread can qualify as sandwich making. However, a performative application of the practice approach means that how the making of sandwiches relates to the research question is more important than defining the details of what sandwich making actually is: investigating sandwich making is part of the enquiry, not the enquiry itself. For example, questions might include: How does food preparation relate to domestic household and gender roles? Or: How has sandwich making changed over time? These specific questions are more important than any absolute definition of sandwich making – and the practice cannot be defined in any way that is independent of this context. Trying to define precisely what does, or does not, qualify as sandwich making is simply not possible independent of further context setting.

A focus on the practice entity is also an emphasis on the past traces of a practice that lead towards stabilisation of that practice. Schatzki (2010, p. 215) observes that any action is "laden with the past". Like a path, mentioned earlier, where the footsteps of one traveller clear the way for those that follow, each performance, like each traversal of the path, eases the way for future such performances, in a feedback logic that quickly converges on a single practice. This focus on the historical aspect of practice can explain irreversible and path-dependent histories, but a backward-looking focus alone

risks overemphasising the convergent and stabilising dynamics of practices – an emphasis for which practice theory has been criticised (Bourdieu, 2005; Watson, 2012) – at the expense of accounting for how practices change.

It is in this way, that the practice, as an entity, has an important temporal component: that it is always backward looking – it is always woven into its present configuration through *past* performances. If a practice can be understood as a 'way of *doing* things' – a dynamic configuration of elements centred around a certain set of actions – then in this context it would actually be more accurately expressed as a 'way things have *been* done'. Any practice recognisable as such can only be recognisable on the basis of performances that have already been completed. Perception of such change may depend on the weighting that is given to more recent performances over older ones, but the nature of a practice cannot be determined by future-oriented intentions, only actual past performances. This is another aspect that affects the way practice change can be understood which is not directly addressed by the practice literature, and which will be addressed through this research.

Yet, a practice is a mysterious entity. What is it about a practice that leads to the set of circumstances it signifies being enacted? Both Warde (2014) and Barnes (2001) note that practice theories have yet to offer a convincing conceptual account of where the regularity and repetition of a practice arises from. Rarely or intermittently performed practices expose this mysterious quality of practices well: they still exist and persist even when not being performed (Shove, 2012b). Shove and Pantzar (2005b) give the example of a carrier seat for a child on a bicycle. Practices and material arrangements of carrying children on bicycles exist and endure, despite individual families only 'carrying' the practice for a short period while their children are of the appropriate age. Other examples might be the practice of skiing, which remains in the off-season, or firefighting, even when no fires are burning. During the widespread Covid-19 pandemic 'lock-downs' of 2020 many practices were no longer performed, yet did not cease to exist, and immediately restarted once restrictions eased. This suggests that despite the importance of repeated performance at the basis of practices, that there is a more durable element to practices as well (Shove et al., 2012, p. 128). The practice entity is the human, social and material framework that organises and structures future practice activity, which becomes apparent when extraordinary circumstances curtail typical performance. Shove et al. (2012) place the performances of practices among practice elements – materials, competences and meanings. Schatzki (1996, 2002) has understandings, rules and teleoaffective structures organising practices in amongst arrangements of material entities. When the performances are removed the structuring aspect of the practice entity is what remains.

Practices, then, as entities, can be seen as some kind of container for regulating many individual performances in some way. It is for this reason that Shove (2012b) prioritises the practice entity for intervention in change, as it is the entity that will shape future performances in some way. However, the direction of causality and outcome of intervention in practices is by no means clear, and often remains stubbornly indeterminate (Shove & Walker, 2007). While practice theory has focused on past dynamics of change, it does not necessarily explain how future change might happen and how or whether it will stabilise in practice. Shove and Walker (2010) explain how the success of the London congestion charging scheme, for example, was in no way guaranteed and required the work of many individuals to successfully integrate the new scheme into the details of their daily travels.

In this way, it is clear that, although the practice entity *theoretically* shapes performances, in reality it is only actual performances that can stabilise the practice. As stated earlier, a practice is a backward-looking concept that can only be observed *after the fact*. Whether a practice is considered to have changed, is something that has to be determined empirically and contextually:

> "When a democratic vote ceases to be democratic, when teaching is not teaching but becomes just imparting a curriculum are issues that people fight for in the street (or moan about in their offices), not something for academics to decide." (Nicolini, 2017b, p. 29)

Practice theory, then, is good at providing fascinating accounts of how practices have changed over time, historically (e.g., Shove, 2003, 2012c; Shove & Pantzar, 2005b), however, this does not necessarily predict or explain future change.

Therefore, change in practices must also take into account performances by individuals, and the manner and means by which performances affect practice entities is by no means clear. This performance-led aspect of practice change will be considered shortly, immediately following a discussion of the role of the individual in practices.

2.2.2 The role of the individual in practices

Before moving on from the role of the practice entity in social change to that of the performance, it is worth addressing the role of the individual practitioner in practices. As the individual is the one embedded within the situation and doing the acting, they represent something of a bridge between the very different ontologies of the performance and the entity – human actors are the unifying element – "the unique crossing point" – between the two (Reckwitz, 2002b, p. 256). Individuals are typically considered to be "carriers" of a practice (Reckwitz, 2002b), which emphasises the importance of human doing to practices, while also decentring it. This move allows the practice to become the

unit of analysis and to exist beyond individual intention or agency, while still retaining some role for people.

The way the role of the individual is formulated in different practice theories also represents some of the difference in emphasis and entity and performance between those theories. Some, such as Shove et al. (2012) tend to minimise the role of individuals as being "recruited" by a practice, while Schatzki (1996, 2002) allows for a "residual humanism", without resorting to human intentionality, through the mechanism of intelligibility.

In considering practice-as-performance and practice-as-entity, Shove (2010a) comes down on the side of the practice entity, which minimises the human role in practices, where "social practices take centre stage to the extent that people, and sometimes things, occupy secondary roles as the carriers of practice" (p. 1279). Shove (2010a) does recognise that practices rely on constant reproduction through localised performance, but prefers to focus on

> "how certain practices manage to secure carriers or hosts who are willing and able to devote significant resources of time and energy to reproducing them over and over again. [...] [I]nterested in how habits capture and retain cohorts of suitably devoted practitioners." (Shove, 2012b, pp. 418-419)

The practice *entity* is paramount to Shove (2012c, p. 128) precisely because it is the practices or bundles of practices that exist beyond the moments of performance and that "capture" cohorts of practitioners who reproduce and sustain the practices. Therefore, from this 'strong' practice-as-entity perspective, if change in performances is required, then it is the practice entity that must be changed. Practices can be changed by reconfiguring those elements to alter the patterns of recruitment and defection. On this account, the practice-as-entity is presented as almost having agency of its own. Rather than practices serving people, it appears that people serve practices by being "recruited" to the practice and remaining "faithful" to it as "carriers" (Shove et al., 2012). Those that discontinue the practice are seen to have "defected" from it, suggesting abandonment. This strong language presents people as almost agents of practices, lured into "carrying" the practice – doing the practice's bidding – rather like a disease vector. This is dynamic was emphasised in the Shove (2012a), which discusses habits from a practice perspective, and which was entitled "Habits and their Creatures".

This 'strong' practice position may be motivated by a desire to counter methodological individualism and to be literally practice-centric rather than individual-centred. Watson (2012) states that "[f]or theories of practice, what people do is never reducible to attitudes or choices, or indeed to *anything simply individual*" (p. 488, emphasis added) and that "[r]ather than meanings, purposes,

understandings and know-how existing as attributes of the subject, they are 'elements and qualities of a practice in which the single individual participates'" (p. 490, quoting Reckwitz, 2002, p. 250).

This interpretation by Shove and Watson appears to be attempting to remove the individual altogether, however, and in the process risks disallowing any feature of human nature from being considered on its own (Alkemeyer et al., 2017). In adopting this 'strong' approach, Shove et al. run the risk going too far in eliminating altogether the human agency and ends which play a central role in the organisation of practices, as per Schatzki (1996, 2002). By dehumanising practices to such an extent, they risk losing sight of the key animating forces that give practices their purpose, and the in-the-moment emphasis of practical intelligibility. Practice theories are united by a desire to centre on practices and avoid excessive valorisation of human intention and agency, however, it raises the question of whether that should be achieved by the *addition* of material and relational factors to the human and social, rather than the virtual *elimination* of the human role to too great an extent.

The idea of individuals as "carriers" of practices (Reckwitz, 2002b), especially when combined with an emphasis on the habitual or repetitive nature of practices, risks portraying social change as somewhat deterministic and mechanistic, with people playing a somewhat passive role (Spaargaren et al., 2016). The risk is that "[t]he practices themselves become reified and endowed with a quasi metaphysical power reigning causally over the actors or making them appear to be mere products" (Alkemeyer et al., 2017, p. 69). Shove et al. (2012) have practices stabilising or changing on the basis of recruitment, defection, and monitoring, but they do not account for the human aspect of those processes, in particular, *why* a person might participate in or defect from a practice, i.e., what is in it for them from the perspective of practical coping. On their account, these aspects are always considered from the perspective of the practice, thereby running the risk of removing human agency and culpability from practices and placing it all in the top-down governance or regulatory domain. This counters the excessive 'individual blaming' of attitude, behavioural and choice based ("ABC") approaches (Shove, 2010a), but then also almost removes it completely, risking throwing human agency out with the individualistic bath water. Such an approach neglects the cultural and human aspects of practices (Spaargaren, 2013; Spaargaren et al., 2016; Welch & Warde, 2015) and begins to resemble structuralist or systemic accounts of sociotechnical change (Alkemeyer et al., 2017).

The individual is not passive amongst practice entities, however. Hargreaves (2011, p. 83) describes practitioners as "as *skilled agents* who actively *negotiate* and perform a wide range of practices in the normal course of everyday life" (emphasis added). "Practices only provide the site, and the 'work' of living still needs to be done" Nicolini (2012, p. 173). Because it is ultimately people, fully embedded in

the business of their daily lives, who originate, animate and perpetuate practices, so it appears that their perspective should not be completely discounted. Nicolini (2012) points out that practices set the scene, but what happens for people and things in that setting is still important:

> "Practices […] come first, because it is only once we appreciate the set of practices involved in a scene of action that we can ask what sort of agency and 'actor-ship' is made possible by these specific conditions." (Nicolini, 2012, p. 7)

Practices create a backdrop against which people act, and which shapes how people act, but the nature of the people doing the acting is still a central component of that setting.

Schatzki (1996, 2001b), in particular, favours the human aspect of practices – defining practices as exclusively human, social phenomena, governed by *practical intelligibility* – what *makes sense* to do.[9] He sees practices as primarily emerging from everyday human coping and practical sense-making, stating clearly that "humans carry out practices" in a material world, where "action is inherently a coping with the world […]. Human activity thus implicates a world amid and with which it proceeds" (Schatzki, 2002, p. 106). Schatzki was inspired to a large extent by Heidegger and Wittgenstein who developed conceptions of intelligibility, especially that intelligibility resides within everyday human activity and is therefore highly context-dependent. Although much of their focus was on language, they believed that people do (and say) what makes sense for them to do (and say) and that that sense-making arises in their everyday practices, rather than from individual rational thought or intention (Dreyfus, 2000; Nicolini, 2012). Nicolini (2012), in describing that tradition, notes that "practice is central to understanding human conduct because practices constitute *horizons of intelligibility*" (p. 164, emphasis added) and goes on to describe "the role of intelligibility [as] watershed among the theories of practice" that he examines (p. 164).

Schatzki's emphasis on retaining a residual human element may offer more hope for designing interventions in practices, such as promoting utility cycling. Practical intelligibility allows for the experience of the practitioner in the moment of acting to be actively considered, in a way that is not so apparent in Shove's formulation – however, without resorting to pure individual intention and agency (Schatzki, 2005). Nicolini (2012, p. 178) suggests that practice theories offer a middle ground between extremes of individualism or anti-individualism – a "post-individualism" – by allowing for

[9] For Schatzki (2002), the material aspect also plays an integral role, but its dynamics are separate – as "arrangements".

localised discretion on the part of the individual, through the mechanism of intelligibility, without having to resort to a rational, decision-making individual. He notes that practitioner and practice emerge together and that neither has ontological primacy. Individuals act within the organising elements of the practice, which shape what appears intelligible to the individual. Schatzki (2005) provides the example of educational practices, where the organising elements of education become more than individual instances of teaching or learning alone:

> "[T]he end of learning that helps organize educational practices is distinct from each individual student's and teacher's goal of learning, and also from the sum of the latter. This organizing end is a feature of the practice that cannot be divided up into the goals of participants; the latter are versions of the former." (Schatzki, 2005, p. 480)

Schatzki (2002) has practices influencing the action of individuals through the mechanism of "prefiguration". Schatzki (2002, p. 96) states that "actions presuppose practices", meaning that although every action takes place as a practical coping with the present circumstances, the horizon of intelligible actions is always *prefigured* by the arrangements and organising principles of the practice. This is the process by which practices render certain actions as making more sense to do than others – where "humans are fated to exist in a prefigured landscape of multidimensionally qualified paths" (p. 226) that make "courses of action easier, harder, simpler, more complicated, shorter, longer, ill-advised, […]" etc. (p. 225). Shove (2010a) describes "the many institutions involved in structuring possible courses of action and in making some very much more likely than others" (p. 1280). What makes sense to do is not an aspect of practices that exists fully 'out there' in social structures nor within individuals, rather, practical intelligibility emerges in the collision of a person, in the moment, within a practice landscape:

> "An individual does not, so to speak, stand self-contained over against a landscape of qualified paths. Rather, she or he is present, or implicated, in the contours and textures of the landscape." (Schatzki, 2002, pp. 229-230)

Schatzki (2005) explains that practices "inject a deep dimension of commonality into social life" (p. 480) that helps to make social life possible. Participants in a practice incorporate the organising elements of the practice in their own context, and in doing so are "governed by, a *single*, common structure: the organization of the practice" (p. 480, emphasis in original). The emergent organising pattern is controlled neither by any individuals or even the collective, but instead brings into being a kind of "collective mind" that persists even when the cohort of practitioners changes or changes when the cohort is the same. A practice is a phenomenon that arises when "people who think of themselves

as a collective aim to carry out joint actions, carefully, critically, and attentively attend and respond to one another's actions" (p. 480).

Serving as a bridge between the ontologies of practice entity and performance, the way in which the individual is characterised, then, has ramifications for the ways in which change in practices is characterised. This is because the individual connects circumstantial changes that occur in the moment of acting to the practice entity and thereby become something of a conduit for adaptation and change. It is to this dynamic of change driven by responses to circumstances that we now turn.

2.2.3 How does performance shape the future practice entity?

So far, we have addressed practice change from the perspective of the practice entity and how it shapes performance, which is well canvassed by practice theorists, highlighting especially how practices stabilise and regulate performance. However, performances also play a critical, but easily overlooked, role in the practice dynamic, especially with respect to how practices might change. If a practice is a collection of elements that is associated in some way with a *way* of doing something, then clearly that 'way of doing' cannot exist without the doing. However, 'things' can be easier and more familiar to deal with than 'doings', and there is a risk that the practice be conflated with those static elements rather than the performative dynamics of many performances. Maintaining a central focus on the performative status of individual, adaptive acting, however ontologically awkward or inconvenient, is always necessary in order to understand the practice entity and how it may, or may not, change.

Recognising the centrality of action – what people do – is crucial to the success of the practice idiom. Failure to distinguish doing from context in this way, can lead to practices being misconstrued as static entities alone, where practices are seen as *consisting of* the elements associated with them. Indeed, in the oft-quoted definition of Reckwitz (2002b, p. 250), seen earlier, he describes a practice as

> "a routinized type of behaviour *which consists of* several elements, interconnected to one other [...]. A practice [...] forms so to speak *a 'block' whose existence necessarily depends on the existence and specific interconnectedness of these elements*, and which cannot be reduced to any one of these single elements." (Reckwitz, 2002b, pp. 250-251, emphasis added)

Similarly, Kuijer (2014, p. 26) states that "practices can be viewed as *sets of interconnected elements*" (emphasis added). Some authors also discuss everyday transport in similar terms – "As a practice, 'bussing', cycling, driving, etc. can be said to be *comprised of* interdependent constitutive elements"

(Cass & Faulconbridge, 2016, p. 4, emphasis added) – or "links" between the elements (Spotswood, Chatterton, Tapp, & Williams, 2015). Even in the hands of Shove et al. (2012), discussion of practices still tends to proceed in terms of the elements themselves – minimising the doing that underpins practices (Alkemeyer et al., 2017) – and diagrammatic representations (such as that in Figure 3 on p. 34) showing practices as interconnected 'materials', 'meanings' and 'competence' can further this impression. Such language can be misinterpreted – especially by the uninitiated – to create the impression that practices are in fact *comprised of* the elements amongst which they take place.

In fact, the acting at the centre of any practice plays a crucial performative role in actively integrating those elements into something that can be recognised as a whole – an entity. Shove et al. (2012, p. 21) also state that "social practices *consist of* elements […]" – however, crucially, they go on to say that those same elements are "*integrated when practices are enacted*" (emphasis added), thereby recognising the performative nature of their connection and integration through activity. Indeed, Strengers (2013, p. 7) refers to "practice-as-*performative*", rather than "practice-as-entity", to emphasise the performance that holds the assemblage of elements together. Gram-Hanssen (2011), in her consideration of different 'elements' introduced by a number of authors, also appears sensitive to this distinction by constantly referring to elements as "the elements *holding a practice together*" and diagrammatically depicts practices as occurring *between* elements and integrating them together.

The important, but often overlooked point is that the elements that make up the practice 'entity' are woven together into that wholeness or assemblage through the *doing* – the particular range of performances – with which they are associated. Of course, that doing can equally not exist independently of the context of elements that makes it possible – hence, through this recursive relationship, performance and practice entity are said to be "mutually constitutive" (Feldman & Orlikowski, 2011). Neither can exist without the other, as both are heavily entangled. Nicolini (2017b, p. 29) suggests that "we are inept in dealing with fluid entities", however, he also warns against resorting to the more familiar ground of entities and nouns when analysing practices, as this runs the risk of re-establishing the structuralism that practice theories aim to transcend. This suggests that any attempts to intervene to change practices must always relate to the many moments in which they are performed.

Practice theories have been criticised for an emphasis on stability rather than change (Bourdieu, 2005; Watson, 2012) and, although, leading theorists like Schatzki (2002) and Shove et al. (2012) go to great lengths to emphasise the dynamism within practices, they still provide a far more convincing account of how practices stabilise than how they change. Mechanisms for how practices shape and stabilise

performances are dealt with at length, but mechanisms in the reverse direction, relating to how performances may change the practice entity, are less clear. If change in practices is the desired outcome to address some of the significant social issues discussed in this work, then it would appear that addressing the pathways through which the practice entity may be changed is of especial import and urgency.

As described earlier, an approach to practices that favours the practice entity over performance risks neglecting the human experience of practices (Spaargaren, 2013; Spaargaren et al., 2016; Welch & Warde, 2015) and may begin to resemble the structuralist or systemic accounts of sociotechnical change that it attempts to avoid (Alkemeyer et al., 2017). The practice entity, by design, must have a historical, backward looking focus. As such, the practice entity is well suited to what Nicolini (2017b) calls a "genealogic" approach that follows the historical trajectory of a practice over time. For example, Shove, in particular, provides fascinating accounts, for example, that follow the entwined trajectories of cycling and driving over the last century or so (Shove, 2012c; Shove et al., 2012), traces the "converging conventions of comfort, cleanliness and convenience" over time (Shove, 2003), and considers the 'fossilisation' of practices – how they die out and what traces remain through time (Shove & Pantzar, 2005b). When tracing changes in practice over time in this way, the practice entity itself must be the primary unit of analysis, as it is the entity that rises, changes and falls across time and location, foregrounded while the specific cohorts, settings and material arrangements may change over time and place. Therefore, it is natural that the practice entity be prioritised with a historic focus.

However, suitability for observing *past* change does not translate automatically into suitability for informing interventions toward *future* change. Both (Schatzki, 2002) and (Shove et al., 2012) use the inherent dynamism that accounts for the stabilisation of practices to also account for the way practices change: if successive performances can ease the way for future such performances in a recursive manner, then any type of divergence in the nature of those performances may also, therefore, shift the emergent practice. If the doing of a practice is what weaves together the elements that support it, then it follows that changes in that doing may also *reconfigure* those elements:

> "Moments of doing, when the elements of a practice come together, are moments when such elements are potentially reconfigured (or reconfigure each other) in ways that subtly, but sometimes significantly change all subsequent formulations." (Shove et al., 2012, p. 13)

Schatzki similarly describes

> "the constant ground-level stirring that pervades the social site. Change enters its purview in two guises: as mutations that some doings themselves are and as alterations that various doings instigate in individual or interlinked practices and orders." (Schatzki, 2002, p. 234)

The "only general proposition about change" that Schatzki (2002) makes is that "change comes about through agency", where "agency" is defined as "doing".[10]

The suggestion here is that the performative nature of practices that stabilises them, also allows for change. Shove et al. (2012, p. 13) note that every "moment of doing" contains the potential for a subtle reconfiguration of the practice. The process of doing in a single moment of performance involves spontaneous innovation and adaptation to circumstances, even at the same time as drawing upon routines, habits and artefacts of performances past (Watson, 2012). The suggestion is that if those performances begin to change in some way, then the configuration of elements that those performances weave together will change too. Such change could be a gradual shift in the same practice over time, such as bathing habits over time (Shove, 2003), or even a bifurcation into more than one practice, such as snowboarding branching from skiing (Shove et al., 2012, p. 72). So the ever evolving present moment, and the response of people to it – what Schatzki (2002, p. 233) refers to as a process of "endless becoming" – always has the potential to either perpetuate or shift the traces of those performances that will be drawn on in the future.

This mechanism appears to account well for small, *gradual* changes in the nature of a practice that occur over time. Shove et al. (2012, p. 72) offer the example of extreme sports, where a new type of performance might be adopted within the practice as a new trick, thereby expanding the repertoire of performances considered part of that practice. In Christchurch, it has been noted that since the introduction of shared cycle pathways in South Hagley Park, pedestrians have learnt to keep to the left of their side of the path to allow bikes to pass (Fleming, 2018). In each case, a new type of performance is observed and adopted by others and supported by collective social dynamics in an incremental and organic manner.

Practice theory is adept at dealing with this kind of microsociology of everyday practices – it accounts for these types of small adaptive measures, and how they impact on the collective nature of the practice, well. These are the aspects of activity or performance that fit easily within the scope of the individual agency of the actors individually – and as collections of individuals – to modify. These

[10] Schatzki (2002, p. 191) defines agency as human and nonhuman "doing".

examples involve small changes in the individual conduct of the practice that 'catch on' and are reproduced by others. However, practice theory traditionally has less to offer with respect to large-scale phenomena (Hui, Schatzki, & Shove, 2017; Nicolini, 2017a; Schatzki, 2016a) or conventional conceptions of institutional and political power (Jonas & Littig, 2017; Watson, 2017). Nicolini (2017a, p. 111) states, however, that any large-scale changes in practices must also be able to be accounted for through down to the level of localised enactments. However, these authors do not provide a detailed account of mechanisms through which changing performances might change the practice entity. The assumption appears to be that if a sufficient number of performances incorporate different configurations of elements – meanings, materials and competences – that, at collective and structural levels, those elements will *somehow* reconfigure to support those new performances.

Some examples demonstrate this. Shove (2003) offers the evolution of "conventions of comfort, cleanliness and convenience" with respect to space heating and cooling, washing, bathing and everyday convenience as an example of this process. She offers a number of mechanisms to explain how creeping expectations by practitioners of what is necessary and normal, in terms of comfort, cleanliness or convenience, leads to product innovation and the setting of new standards of service, which then, in turn, leads to a higher expectation of what is necessary and normal. In this way, ever-escalating resource consumption becomes locked-in. Similarly, Shove et al. (2012, p. 50) provide the widespread adoption of reinforced concrete as an example of such a process. They note how initial, localised experimentation eventually "stabilized to the point that it could be defined, taught and learned regardless of the situation" leading to precise and highly codified ways of making and using concrete today.

All of these examples are used to demonstrate how ongoing performance – especially *changing* performances – can become stabilised in practice entities. However, what they fail to account for is *how* those *performances* change the practice *entity* and even the direction of causation. Shove (2003) describes new expectations leading to the development of new products, thereby increasing resource consumption, however, she does not describe the means by which the new products respond to those expectations. It could in fact be argued that the normalisation is in fact more of a social *adaptation* to the introduction of new air conditioner, washing machine and refrigerator technologies offered separately by manufacturers. Those manufacturers may identify a demand and develop a product to take advantage of that demand, however, this is a process that takes place in the realms of manufacturing and engineering, well outside the domain of everyday household practices. Whether or not that product development succeeds in providing more comfort, cleanliness or convenience is

governed as much by material and economic constraints rather as it is by demand alone. In the case of reinforced concrete, although the early development of concrete making may well have been a relatively small scale and organic process, the codification of regulation and standards may well have been a very political and institutional process dominated by a relatively small number of players. Again, while the experiences of those mixing and laying concrete may have had some input into that codification, the actual processes involved in establishing it are likely to have involved very different practices, such as engineering, policy-making and politics.

In examples such as these, there appears to be an unstated assumption that the structural aspects of practices will somehow simply change to match the demands of performances, as if practices change on the basis of demand emanating from the moment of acting alone. Smaller, microsocial changes may well occur in this way – and people naturally walking on the left-hand side of shared cycle paths is a good example of this – however, this seems to perpetuate the criticism of practice theories as being restricted to the 'small' and mundane. The world abounds with examples of practices whose performances are not accommodated to the satisfaction of their performers – and utility cycling is just such a prominent example.

Burk (2017) is one of few to address this dynamic directly through practice theory lens, by looking at the provision of cycling infrastructure in cities in the United States. He found, through statistical analysis, that demand for cycling, indicated by utility cycling participation rates, was not sufficient on its own to predict the level of provision of cycling infrastructure in a city. Instead, typically, a strong presence of environmental political groups within the city was *also* required in order to see infrastructure that matched levels of demand. This, again, suggests that there is not an automatic causal impact of individual performances (e.g., participation in cycling) upon larger, more structural elements of practices (e.g., the construction of cycleways). *Demand* for change, and recognition of its efficacy, may well be linked to a collective impact of individual performances, however, the *means* by which that change is achieved may be far removed from the actual practice itself. The performance of an individual utility cycling trip may be significantly facilitated by the provision of cycling infrastructure, but, that infrastructure eventuates by way of practices and elements such as political activism, politics, city budgets, urban layout and topography, and engineering and road construction. Most of the aspects that bring about the structural change are aspects that lie well outside of the practice of utility cycling itself and therefore beyond the scope of most practice theory analyses of utility cycling.

Tracing individual performances is crucial to understanding the practice entities that emerge and stabilise as a context to that acting; this must be so because the practice entity itself is derived from a recognition of that acting. However, although the practice entity must be *explored* and *understood* by way of performances, it does not necessarily follow that *change* in practices also emerges by way of performance, especially change that falls outside the immediate agency of the person in the moment of acting. The mechanisms by which larger structural changes occur in the elements associated with practices receives little consideration by practice theorists. Schatzki (2002, p. 235), in fact, even remarks that he has not sought to systematically account for all such changes, although he does go on to briefly discuss some possible such mechanisms.

This discussion suggests that because practices strongly influence what people *can* do, any attempt to influence or alter practices must also be strongly implicated in power dynamics, and a number of authors describe power as being central to practice accounts of the world (e.g., Nicolini, 2012; Schatzki, 2002; Shove et al., 2012). However, these accounts typically describe power in a Foucauldian sense: omnipresent, fully relational and existing only through being enacted at multiple levels, beyond individuals or institutions alone, as an interplay of force and resistance (Lynch, 2011). It is power as "governmentality", i.e., power to "structure the possible field of action of others" (Foucault, 1982, p. 790). This type of power is "ubiquitous" within practice theory, especially the normative influence of practices (Watson, 2017, p. 181), therefore any attempt to intervene in practices suggests Foucauldian power relations.

Practice theory has been critiqued, however, for failing to account for more conventional conceptions of political power in the manner exemplified by Burk (2017). Watson (2017) notes that while practice theory fully addresses this type of Foucauldian governmentality at its core, to date it has had little to say about more traditional conceptions of power as something held and wielded by individuals or institutions, especially in influencing politics and policymaking (Jonas & Littig, 2017). Watson links this difficulty with traditional power to the general criticism often levelled at practice theories that they are less suited to accounting for large-scale phenomena operating at a distance (Jonas & Littig, 2017; Watson, 2017) and therefore less able to explain how practices explain institutional power and dominance. Practice theories – with their focus on *existing* patterns that organise activity – tend to be better suited to accounting for gradual, evolutionary change, rather than abrupt, revolutionary disruption, where the organising entity is departed from. Watson (2017) suggests that practice theories may need to borrow or adapt compatible concepts of alignment and aggregation from actor-network theory – such as inscription devices, mobiles and centres of calculation – that account for

large phenomena and action over distance without sacrificing a flat ontology. Watson concedes that the reification applied by fields such as economics can yield some advantages, so it appears that the insistence of practice theories on emphasising the flat ontology of practices can make it more difficult to account for large-scale influence and domination at a distance.

2.2.4 Summary – The nature of how practices change

Practice theory, then, appears to have an imbalance in the extent to which it can account for a bidirectional relationship between entity and performance, and performance and entity. Practice theory is clearly adept at tracing how the small, mundane aspects of everyday life – of the type proposed with respect to utility cycling in the introduction to this work – adapt and respond to change. By their nature, practices are backward looking. Although a practice may be referred to as the way something *is* done, what is in fact referring to is the way that that something has been done in the recent past. It is a critical point, as noted, that practice entities must be identified performatively from individual performances, however, while performances may pay attention to the present and very near future, any analysis of those performances can, again, only draw on *past* performances.

It appears, then, that practice theory may, in fact, be better suited to accounting for the *micro*social dynamics of social change, as observed by critics – i.e., how societies *adapt* to externally imposed changes in the elements of practices, rather than explaining or predicting how to make such changes. This raises important questions with respect to the objective of this research, which is to explore avenues for intervention in the nature of everyday practices in the way described. However, it does not mean that all is lost for practice theory in this regard, because it also raises questions as to whether it is necessary, or even possible, for practice theory to address intentional intervention of this nature. The following section will consider how change may be considered as occurring between practices, but the chapter will then return to this topic, as other authors have grappled with this question of how to effect intentional change.

2.3 How change happens between practices

Practices always exist against a context of yet more practices – "practices all the way down" (Nicolini & Monteiro, 2017, pp. 111, 124). Part of the reason that a practice is such an elusive entity is that it is difficult to bound where one practice begins and another ends, as practices are so deeply intertwined. This means that any consideration of change in terms of practices can never be considered in terms of single practices in isolation. Practices can mutually reinforce each other, compete with each other

or form part of the wider backdrop in which a practice might be made sense of. It is possible, then, that change with respect to a practice like utility cycling could well come about in the space *between* practices, without requiring substantial changes to the practice itself.

In the practice idiom the social exists within fields of practices through a 'flat' ontology, where, unlike dualistic or hierarchical formulations, the social is seen as being constructed entirely from practices and their interactions at all levels (Spaargaren et al., 2016). So, whereas a structuralist account might subdivide socio-technical change into micro, meso and macro levels – practice theories have practices constituting all apparent levels and scales (Miettinen, Samra-Fredericks, & Yanow, 2009) – therefore: "practices all the way down" (Nicolini & Monteiro, 2017, pp. 111, 124). Large, complex constellations of practice and small, localised practices are all still practices and can be accounted for as such (Nicolini, 2017a). The recursive and co-constitutive logic of performances and the organising influence of practices allows practices to scale, in self-referential loops, from the smallest activity to the largest global phenomenon, through fields of practices.

Schatzki (2002) refers to the social "site" as being made up of "contextures" of practices and material orders, where the contexture is a type of context made up of different types of entity, yet where those same entities also form their own context. This construction envisages a world where practices exist only in relation to yet more practices, including their material component. Every part exists relative to every other part: "In simple terms, practices are both the cause of themselves and their outcome – so that practices perpetuate themselves, albeit imperfectly, in a quasi-recursive movement" (Nicolini, 2012, p. 187). The sense of a context, distinct from the practices of interest, is only achieved by way of "blackboxing" parts of the practice landscape, for analytical convenience, but it is still constituted of practices (Schatzki, 2002, pp. 67-68). As a result, "practices are stitched together into one overall but variegated and modulatingly dense web" Schatzki (2002, p. 155), where practices "overlap, interweave, cohere, conflict, diverge, scatter, and enable as well as constrain each other" (Schatzki, 2002, pp. 156-157).

Given this universality of practices in the practice ontology, it is important to consider *bundles* of practices first and foremost, not simply the perspective of a single practice (Blue & Spurling, 2017). As a result, one should be hesitant about beginning with an assumption of a single practice and consider instead the whole field of practices – the practice landscape. Consideration of all of the related practices becomes an important starting point in the study of any apparently single practice. Any practice in isolation is meaningless without reference to the practice landscape within which it becomes intelligible. Blue and Spurling (2017) call for "a version of practice theory that begins with

complexes of practices and not 'a practice'" (p. 36), emphasising the importance of interrogating the "connective tissue" that holds webs of practices together. What appears to be the features of a single practice may in fact be inseparable from its relations with other practices. Beyond simply considering the connections between practices, they counsel also studying the interactions between the connections – what they call the "*inter*connections" (their emphasis).

What exists is *practising* everywhere. Practices are so tightly entangled and interwoven that where one practice begins and another ends may not be a simple, or even appropriate question – or may be arbitrary or heavily dependent upon the research question and empirical setting (Nicolini, 2012; Shove, 2017). Shove et al. (2012, p. 81) note that driving, for example, has emerged from a tight "complex" of separate practices to have become what is usually now considered to be a single practice, but there is no hard boundary where driving ends and supporting practices such as vehicle maintenance begins:

> "Individual practices do not have intrinsic dimensions, features or temporal qualities. Instead, they are always bound up with other activity. What look like features of a practice are rather outcomes of a practice's positioning within a complex." (Blue & Spurling, 2017, p. 31)

Any single practice can only be fully understood in term of its interactions with its wider practice ecosystem. For this reason, any analysis of practices must constantly refer to the wider practice landscape of any practice of interest and never that practice in isolation, if such isolation were possible.

Numerous concepts, such as "net, network, web, bundle, texture, confederation, congregation, assemblage, mesh and ecology" are invoked by practice theorists to attempt to capture the range of interactions of practices with themselves (Nicolini, 2017a, p. 103) and the intricacies of those interactions are best left to empirical observation (Nicolini, 2012, 2017b). However, it is worth noting some of the primary ways in which practices interact. Shove et al. (2012, p. 81) state that practices can form weaker "bundles" through relations of co-location or looser co-dependence, such as practices that may occur in a particular location like an office or a port. Others may form more closely related "complexes" of practices, such as docking a ship, where a number of practices are involved, but are so closely integrated, that the constitutive practices are difficult to separate, and the overall complex may even be considered as a practice in its own right.

Practices can also collaborate or compete with one another (Shove et al., 2012, p. 87). For example, listening to music on a portable device may collaborate with disparate practices such as housework or exercise, each reinforcing and supporting the other, or the nature in which grocery shopping is carried out and located may reinforce the practice of driving (Watson, 2012). Other practices may

directly compete, such as film-based and digital photography, to the extent that the latter has almost eliminated the former (Shove et al., 2012, p. 87). Utility cycling can also be presented as competing with driving, especially for space on the roads (e.g., Shove, 2010b, 2012b, 2012c; Shove et al., 2012; Watson, 2012, 2013) – although there are, of course, ways within which they could be seen to collaborate and share many elements of practice, demonstrating that such relationships may be complex and multifaceted.

Another aspect of inter-practice relations that relates particularly to utility cycling is the coordinating effects of practices in daily life. Everyday mobilities, such as utility cycling, that connect geographically disparate activities together, clearly play a key role in the scheduling and enabling of many aspects of everyday life. Practice theory sees practices as not only located in space and time, but also as *producing* "timespace" (Cass & Faulconbridge, 2016; Schatzki, 2009, 2010; Shove, 2009). The lived experience of temporality and spatiality are intimately intertwined with the web of practices being performed in those times and places. On the most basic level, practices can be seen to "colonise" a certain finite amount of time and attention from the practitioner in any one day (Shove et al., 2012, p. 127). More interesting, however, is how the spatiotemporal demands of practices for time, space and resources interweave and interrelate in the scheduling, coordination and rhythms of daily life. Southerton (2003, 2006), for example, notes that perceptions of "time squeeze" and "harriedness" in modern life arise from practices that require complex coordination of co-presence with others and fitting around institutional timings such as work and school and social conventions like meal times and evening- and weekend-specific activities. Taken all together, these sequences create a collective rhythm and temporality to daily life (Southerton, 2012).

Practices also have a similar relationship with space, in that practices can co-exist in it and compete for it, and define the space (Schatzki, 2009, 2010; Shove et al., 2012, pp. 130-132). A marketplace becomes a marketplace by virtue of the set of practices that occur there, for example (which may also be temporally determined: on market *day*). Roads, workplaces, parks or places of worship can all be defined by the practices that occur there at the same time as shaping those practices, in a now-familiar type of recursive relationship. When "common and shared spatialities (e.g. the road as path to work) and shared and common temporalities (e.g. the common futures of getting to one's destination and doing so safely)" coincide, then some degree of "harmonisation" is required to allow the efficient working of social life with minimal conflict (Schatzki, 2009, p. 44).

This inter-practice space, which considers how multiple practices interact, is especially pertinent to the questions posed in this research. Although changes within the practice of utility cycling may be

required to promote participation – most noticeably, the provision of safe cycling infrastructure – many of the issues faced relate to its interaction and competition with driving as a practice, situated within the many other practices of everyday life, as noted in Chapter 1. In practice theory terms, these dynamics exist primarily between a number of practices – utility cycling and driving in the context of other daily practices. Examining the position of utility cycling within the practice landscape will be a central aspect of this research – in terms of how the different modal practices relate to each other, how utility cycling relates to other (recreational) cycling practices and how utility cycling integrates with other daily practices and activities.

Considering change, in this way, at the level of competing or alternative practices raises another mechanism for change which has attracted relatively little attention in the literature: practice switching (or practice substitution, Spurling & McMeekin, 2015; Spurling, McMeekin, Shove, Southerton, & Welch, 2013). Practitioners may participate in many different practices of a similar nature – such as using different modes of transport at different times. Typically practice change is discussed in terms of the practices themselves changing, however, practice change may occur even when the practices change very little at all, by practitioners changing *how often* they perform each practice. For example, the practice landscape of everyday transport could change significantly, if more people rode bikes and took public transport and fewer people drove cars, even if the form of those practices individually actually changed relatively little. In such a situation, it is shifting the relative differences between the practices – or the "balance of competition between them" (Spurling & McMeekin, 2015, p. 80) – that becomes paramount.

When it comes to competition between practices, Shove and various collaborators favour their practice-centric cohort model of recruitment and defection of practitioners as a key mechanism for change. This means that if cycling and driving compete as practices, they compete by attempting to "recruit" practitioners to their own cause and lead to "defection" from the other. According to Watson (2012), the "success" of a practice depends on its ability to "hold on to [practitioners and] preventing them from defecting" (p. 491). This extreme practice-centricity is somewhat awkward as it seems to place agency with the practice rather than the practitioner (or practitioners collectively). At the same time, it relies on a clear definition of what a practice is and mutually exclusive 'membership' of that practice. In the case of everyday transport, travellers may use multiple modes of transport within a given week, day or even within a single trip, so the language of recruitment and defection is difficult to apply. For example, someone who cycles to work almost every day has not 'defected' from cycling if they take the car on one particular day or because they own a car. The language of recruitment

and defection implies a binary nature to practice 'membership', which may not be applicable to many mundane everyday activities.

Considering change as practice switching, but without resorting to a cohort model which strongly favours the practice entity at the expense of the potential elimination of individual agency, appears to leave the door open for a new conception of change through a practice lens. This research is exploring a scenario common throughout sustainability initiatives: a desire to favour one more desirable, sustainable practice over another less desirable, less sustainable practice. The introductory chapter presented the promotion of utility cycling as just such a scenario, calling for this to be considered relative to driving on from the context of those embedded in the midst of everyday life. In the language of practice theory, this is an exploration of the relations between two competing practices that exist against the backdrop of other everyday practices. With the focus sitting, as it does, *between* many practices and less on the internal dynamics of those practices, this will go on to raise a number of questions about the nature and role of the practice entity in such situations and how practice theory principles may be more generically applied between practices.

2.4 Intervening in practices

Practice theory is often applied to attempts to change practices, especially for environmental reasons, where unsustainable practices are to be discouraged in favour of more sustainable alternatives (e.g., Shove & Spurling, 2013; Strengers & Maller, 2012; Warde & Southerton, 2012). As seen in Chapter 1, practice theory is readily critical of approaches that rely solely on mechanisms of individual behaviour (e.g., Shove, 2010a) or technological determinism (e.g., Keller et al., 2016; Shove, 2015) to encourage such change. One of the challenges of a flat, performative ontology, however, is that it deconstructs the simplistic models of human agency that offer refuge in causal individual agency or universal structural agency (Evans, McMeekin, & Southerton, 2012; Shove, 2010a), but without necessarily offering workable alternatives (Jonas & Littig, 2017; Maller & Strengers, 2015; Watson, 2017). Practice theories attempt to thread a path between the extremes of individualism and structuralism by invoking a co-constitutive model that allows situated and adaptive action to recursively shape the overarching organisation of practices, and vice versa, however, doing so introduces significant complexity and an ontological and epistemological tension between the 'zoomed-in' focus on doing and the 'zoomed-out' perspective on entities (Alkemeyer et al., 2017). Policy that would have rested relatively comfortably on the bedrock of *either* the individual level or the structural level, with each

relatively independent, now, instead, has each level placed into a co-constitutive dance, such that each is now located in an unpredictable feedback dynamic.

The recursive dynamics of practices may be theoretically satisfying, and even a more accurate representation of actual dynamics, however, it may become complex and elusive to work with in a practical sense, thereby risking sending policy makers running back to the refuges of individualism and structuralism. Indeed, Shove and Walker (2007) warn that sociotechnical transitions are so notoriously difficult that "[t]he outcomes of actions are unknowable, the system unsteerable, and the effects of deliberate intervention inherently unpredictable" (p. 768-769) such that "for a policy audience, our warnings could be read as an invitation to abandon the whole endeavour" (p. 768). Strengers et al. (2015) also note that despite the theoretical progress of practice theories, there is no empirical evidence that practice-based interventions are any more effective than behaviour based programmes. Clearly, then, practice theories are in need of a conceptualisation that is accessible to the practical demands of policymaking, without driving analysts to despondency or despair. How practice theory may become more practical is an important aspect to continue to explore if it is to find application beyond academia alone.

A number of practice theorists have grappled with these questions in more recent times - however, the result is not simply a convenient, alternative to individualism and technological determinism. As noted in Chapter 1 with respect to the work of Pooley et al. (Pooley, Horton, et al., 2013; Pooley, Horton, et al., 2011; Pooley, Tight, et al., 2011), any work that explores the everyday complexities of practices only finds complex and entangled relations traversing all levels of life. What practice theory offers change-makers first and foremost is an upfront acknowledgement of, and exposure to, the harsh realities of such complexity, rather than reductive framings which may leave room for cynical deflection of key issues (Shove, 2010a, 2015).

However, this approach can run foul of the dominant paradigm and research agenda in most policy and governance circles, which tends to favour the convenient simplicity of linear behavioural and technological assumptions and can thereby hinder research relationships (Evans et al., 2012; Shove, 2010a; Strengers et al., 2015). For example, impact evaluations into any policy interventions are considered good governance practice, however, these are based on paradigmatic assumptions of clearly attributable causal links between intervention and outcomes (Keller et al., 2016). Practice theory based interventions may not be able to demonstrate the kind of clear causality required to maintain support or funding. Additionally, practice theorists who work within more traditional policy settings

may also find difficulty in applying the practice lens to problems that have already been framed in more linear terms (Strengers et al., 2015).

This tension between practice theory and dominant policy paradigms lends weight to criticisms of the micro-scale focus of much practice theoretical research. Macrorie, Foulds, and Hargreaves (2015) comment that a focus exclusively on the fine details of everyday household routines, such as cooking and showering, neglects the workplace processes and practices of the housing professionals who make and enact institutional policies. Such an approach is consistent with the insistence of practice theories that no practice exists independently of other practices and that, therefore, nor does any policy or governance practice sit outside of the practices which it may influence (Shove, 2012b; Shove & Walker, 2007, 2010).

Instead, intervention in any practices requires a more consistent, ongoing engagement, across multiple levels and institutions, sustained over time (Evans et al., 2012; Keller et al., 2016; Schatzki, 2015). Practice theory demands that change-makers "significantly widen the field of vision" (Duncan et al., 2018, p. 14), beyond the immediate practice and practitioners to include a wider context of other practices and other stakeholders. This enforced widening of perspective resists the containment of complex issues within disconnected silos and therefore, ultimately, may demand more fundamental change. Shove (2015) provides examples of attempts to lower carbon emissions which limit attention primarily to technological and infrastructural intervention while wider aspects of the practice landscape, such as the rhythm of daily life or standards of living, are assumed to remain unchanged. A practice theory perspective on change forces much more uncomfortable questions about the aspects of modern life that might drive or lock in undesirable outcomes. Shove (2010a) suggests that governments favouring narrower, linear perspectives, such as a focus on individual choices, may in fact be a political move that "obscures the extent to which governments sustain unsustainable economic institutions and ways of life, and the extent to which they have a hand in structuring options and possibilities" (p. 1274) – which underscores the assertions of Macrorie et al. (2015) that the practice lens must also be turned onto institutional and workplace practices.

The call to widen the focus to include all levels of the practice landscape is a daunting prospect for any individual researcher, or even individual institutions. It is to this end that Schatzki (2015) offers the concept of "distributed governance", where governance is defined as "intentional shaping, directing or influencing" (p. 19) – not only in institutions, but at all levels of social organisation, including families, relationships, sports teams, offices and even traffic. This approach takes the load off any individual researchers or institutions in isolation – it by no means excludes them, but

emphasises the need for many "would-be governors" to pay attention to and foster change within their own specific domain, whether large or small. It is in this way that individuals are heavily implicated in calls for change – "since people perform the actions that compose practices" (p. 27) – however, with the key distinction that the attention is upon changing the way elements are configured, rather than upon individual actions and attitudes.

Shove et al. (2012) and Spurling and McMeekin (2015) have explicitly outlined programmes through which a practice theoretical framing of policy intervention may occur. Shove et al. (2012) focus particularly on reconfiguring the ways in which materials, meanings and competences are reproduced by practices, addressing the networks of practices and elements that hold undesirable practices in place in exchange for interventions that encourage more desirable practices. Spurling and McMeekin (2015) suggest three framings of intervention in a similar vein: "re-crafting" of practices through the reconfiguration of elements; substitution of less desirable practices with more desirable alternatives; and, changing how practices "interlock" to sustain or change practice relations. The focus on practice substitution and their relations of wider field of practices is particularly pertinent to this research, as it considers practice switching from the perspective of everyday life, while also considering the wider backdrop of associated everyday practices.

These considerations by practice theorists show that intentional intervention in significant global issues from a practice theoretical perspective requires far more fundamental engagement than simply substituting individualistic and technological approaches with practice approaches. The two approaches are "like chalk and cheese" (Shove, 2010a, p. 1279; 2011) – entirely different paradigms embodying very different approaches. Any adoption of a practice theoretical approach to change, it appears, will require a fundamental and sustained commitment to rearranging the social and material world in which people do the things they do in order to explore and experiment with new ways of doing things.

This work considers practice change from the point of view of the promotion of utility cycling, and will consider how the complexities of such a setting may be negotiated in a manner that is practical and accessible to change-makers. Others have attempted to view utility cycling through a practice lens too, however, and it is this body of work that we turn to now before concluding the chapter.

2.5 Intervening in utility cycling

A number of authors have considered utility cycling from a practice theory perspective as an example of the types of intervention described above, particularly Shove and collaborators, and with most adopting the Shovian practice model. Of the intervention methods described in the previous section, consideration of configuration and reconfiguration of elements is the most commonly adopted. Substitution, or competition, between practices – namely, utility cycling and driving – is also a theme explored in some depth, along with the wider relationship with other everyday practices. Some, inspired by other practice theorists, paint a richer, narrative picture of the everyday cultural realities of cycling for transport.

The most common avenue of analysis adopted with respect to utility cycling is to consider it in terms of interactions among the Shovian elements. These tend to regard promotion of utility cycling primarily in terms of the reconfiguration of elements: materials (bikes, equipment, infrastructure, facilities, bodies), competences (riding a bike, negotiating traffic, managing clothing, equipment, loads, etc.) and meanings (identities, norms, perceptions) (e.g., Anantharaman, 2017; Scheurenbrand, Parsons, Cappellini, & Patterson, 2018; Spotswood et al., 2015; Viladot, 2018).

Some of these works produced accounts that convincingly wove these elements together in terms of sense-making and everyday lives. Larsen (2015), for example, explains how Copenhageners tend to favour ease and convenience over bike security with respect to bike parking – they ride older, less valuable bikes, with more convenient, but less secure, 'O locks' attached to the frame, so that bikes are almost considered disposable. Aldred and Jungnickel (2013) also describe the types of "strategies" cyclists in the UK use to store and park their bikes and prevent them from being stolen. They consider how it is that the practice overall might frame the determination of when an object of mobility is seen to be a 'hassle' or an annoyance.

Others also identified many key elements of utility cycling practice and also considered ways in which they could be combined, however, discussion occurred primarily at the elements level, losing some of the sense-making perspective of the practitioners present in the accounts above. The practice approach did ensure that a wide range of aspects be considered simultaneously, however. Spotswood et al. (2015) considered how identified elements might be addressed in combination, e.g., linking perceptions of cycling by professionals with the provision of workplace facilities, or links between urban speed limits and cycling competences, while Scheurenbrand et al. (2018) explained the challenges of cycling on a small island and Hofmeister and Stibe (2017) integrated elements into a

design approach. Overall, the elements approach was most successful when they could be woven into convincing accounts of everyday experience with utility cycling.

Guell, Panter, Jones, and Ogilvie (2012) presented a 'rich' depiction of the lived realities of cycling. They adopted the theoretical constructions of Bourdieu and the emphasis on 'everyday' life of de Certeau, to consider practices within constantly changing social worlds. Rather than attempting to account more systemically for practices, they instead characterise them as taking place in constantly changing and "fluid" social worlds, which require "tactical negotiation" (p. 233) of ambiguous and complex social contexts. They emphasise practices as social and emotional accomplishments:

> "People manoeuvre tactically through these adversities, established relations or haphazard encounters, and in the context of commuting, people are constantly renegotiating the organisation of their daily travel: responding to seasonal, financial, familial and emotional changes, creating their own spaces, rendering them dangerous or safe, stressful or even enjoyable." (Guell et al., 2012, p. 238)

This focus on the human and social component of commuting highlighted meaning-making and sense-making with respect to the practices, which was lacking in some of the more systemic attempts at enumerating the complexity of everyday mobility in terms of elements.

The body was an important element in a number of accounts. Larsen (2016b, p. 39) considered the role of the body and the environment it is exposed to in the "embodied, multi-sensuous experience" of everyday cycling. This takes the consideration of bodies well beyond simply being a source of motive power and exposure to the elements and traffic. The concept of "emplacement" (Howes, 2005; Pink, 2011b) emphasises not only the body and the mind, but the mind-body in a "sensuous" relationship with the physical and social environment. This has affective ramifications through the intensity of the physical experience: "Commuting by bike requires that people (learn to) cope with the affective intensities of 'bad' weather, fears of cycling, and the physical labour involved" (Larsen, 2014, p. 63). The affective response to this experience – as pleasant or unpleasant – can act as a deterrent to cycling, however, he notes that a physical and mental tolerance – an "affective capacity" (Jones, 2012) – can be developed for that embodied activity through training and becoming accustomed to the practice, even for a relatively unfit, "forty-something" smoker such as himself (Larsen, 2016a).

A number of papers also look at how cultural aspects affect utility cycling, through a practice lens. In the United Kingdom context, low rates of cycling have a self-reinforcing, negative normative impact because cycling is stigmatised as simply not normal, dangerous, annoying and even inappropriate for

professional people (Aldred & Jungnickel, 2013, 2014; Spotswood et al., 2015). This status of cycling as a marginal practice affects the way that cycling is done in terms of materials, competences and meanings. For example, development of protective skills and identities by cyclists to maintain their practice, risked the development of a 'subculture' incompatible with mainstream culture (Aldred & Jungnickel, 2014) and even parked bikes were perceived as being 'in the way' rather than having a legitimate right to be there (Aldred & Jungnickel, 2013). Nettleton and Green (2014) note that, in a similar way, for some minority ethnic groups in the UK, the idea of cycling for transport is "unthinkable" – literally invoking laughter at the prospect. They note that it is important to "examine the interplay between context, circumstance and practice" (p. 241) to allow for the prereflexive or unspoken aspect that "goes without saying" (p. 242). Anantharaman (2017) used a Shovian practice approach to show how middle class cyclists in India used materials – sophisticated bikes, clothing and equipment – and meanings – 'coolness', fitness, health and environment – to perform a distinctive group identity that provided a "defensive distinction" of cycling-by-choice, as opposed to the cycling poor, who cycle out of necessity.

A number of papers also focused on the substitution and competition between practices, situated in the context of wider, "interlocking" everyday practices, as proposed by Spurling and McMeekin (2015). Shove (2012b, 2012c) and Watson (2012, 2013) in particular focus on utility cycling as "velomobility", which is a whole system of practice around the bike, and especially contrast it with the car – as "automobility". They consider the historic trajectories of cycling and driving over time, how the future of cycling might be intervened in and how transport practice fits amongst other everyday practices (as do Cass & Faulconbridge, 2016). They both offer a comprehensive account of the complex, interdependent and situated nature of cycling as systems of velomobility and automobility, and demonstrate that change in either practice requires changes deep within the configurations of diverse elements that make up both practices. They draw on Urry's notion of 'automobility' (Urry, 2004), where he presents the dominance of the automobile as a powerful and far reaching system that has had profound influence on culture and society. In his account automobility is an unnecessary condition that despite being "neither socially necessary nor inevitable" (p. 27) has been "irreversibly" "forced" upon society through a path-dependent cultural and industrial trajectory.

Shove and Watson point out that the system of velomobility for bicycles is as far-reaching as it is for automobility and, therefore, so is the depth of the dominance of the car over the bike. Watson (2013) notes that such "systems can only emerge, persist and gain dominance by capturing time and attention, and by colonising what people do" (p. 122) and as they do so they can engender feedback

processes whereby the system signifies itself and "individuals are *coerced* by the increasingly self-evident necessity of car transport" (p. 122, citing Urry, 2004, emphasis added). Cars and bikes not only compete, then, for space on the roads, they compete for people's time and attention within their daily lives, as well as their money, especially when large amounts of money are sunk into a car. They also compete in the social discourse around safety, health, responsibility, convenience and status (p. 122-124). Shove (2012b) adds that perceptions are also relative, with the bike, that once seemed so fast relative to walking, now seeming slow relative to the car.

Watson's imagery of the *colonisation* of what people do expresses the depth to which a competing practice can dominate another on multiple levels, well beyond the level of the core activity itself. It highlights that any practice has ripples that extend far into its social and material context, which need to be accounted for if any change is proposed. Watson (2012) presents grocery shopping as an example of such a far-reaching effect:

> "[T]he shifting character of grocery shopping is inseparable from shifting patterns of personal mobility, with out of town supermarkets co-evolving with patterns of personal car mobility, and with the broader restructuring of the temporal rhythms of daily life that are enabled by, and make necessary, the convenience of provisioning a household with a single shopping trip to one destination." (Watson, 2012, p. 491)

The car, then, does more than just compete for space on the roads. Its influence extends into the physical layout of cities, household provisioning and daily and weekly scheduling and coordination of tasks. Due to the depth of entanglement of mobility practices with other everyday practices, Cass and Faulconbridge (2016) and Spurling and McMeekin (2015) suggest that referring to utility cycling as a single, monolithic entity may be inappropriate and instead subpractices such as cycle-commuting, cycle-shopping or transporting children by bike should be considered. This is exposed when one specifically asks "what mobility is for" (Spurling & McMeekin, 2015, p. 88), revealing that cycling for transport is rarely undertaken for its own sake alone.

Shove (2012b, 2012c) and Watson (2012, 2013) place a strong emphasis on the practice entity and present mode switching in terms of concepts of recruitment and defection, focusing on "recruiting" "carriers" (practitioners) of cycling and encouraging a concurrent "defection" from driving:

> "People are vital as the carriers and transformers of practice. If practices like driving or cycling are to survive they have to secure and maintain resources and practitioners willing and able to keep them alive" (Shove, 2012b, p. 424).

This emphasis on the practice entity, however, which includes people only as "carriers" runs the risk of reifying practices at the expense of a "residual human" component that would recognise practices

as being carried out for and by people. Presenting systems of automobility as "coercing" people locates agency with the practice. On their account, rather than practices serving people, it appears that people serve practices by being "recruited" to the practice and remaining "faithful" to it as "carriers". Those that discontinue the practice are seen to have "defected" from it, suggesting abandonment. This strong language presents people as agents of practices, lured into "carrying" the practice – doing the practice's bidding – rather like a disease vector. The result is that, like Urry (2004), Shove and Watson appear to have constructed an image of systems of mobility that almost have their own agency to control and "coerce" people against their will. This type of portrayal of practitioners as 'carriers' "risk[s] portraying social change in a rather determinist way" and "with passivity and repetition" (Spaargaren et al., 2016, p. 64). A danger of assigning so much apparent agency to the practice entities is that practices can be seen as serving themselves, for little apparent reason other than their own continuation. With the human component minimised or removed, this can have a tendency to present complex interactions where only top-down interactions at the political level are possible and little regard is given to how or why each mode is intelligible to the people involved.

This approach risks neglecting the practical intelligibility and teleoaffectivity that a Schatzkian approach would retain. Cycling practices are highly variable and adaptive to often rapidly changing circumstances, navigated through constant negotiation and renegotiation, in real time, to shifting practical, social and emotional circumstances (Guell et al., 2012). Spurling and McMeekin (2015) also specifically consider the substitution of practices – of a less desirable practice for a more desirable alternative – particularly, utility cycling over driving. However, rather than simply assuming that driving may be substituted by cycling, they consider the "balance of competition" (p. 87) between the modes expressed in terms of the "interlocking" everyday practices that modes of transport are designed to serve. This approach directly considers mode switching within the complexities of everyday life, rather than as a straightforward and unproblematic substitution. In this way, it appears to retain a stronger element of situated, human sense-making in the moment of acting with respect to modal 'choice', that is not so evident in cohort models of recruitment and defection. It also allows for more nuanced and situated participation away from the binary implications of 'membership' of a practice.

The promotion of utility cycling, then, can be seen as an ideal example through which to explore the efficacy of a practice theory framing of attempts to promote more desirable, sustainable practices. It provides a clear example of competing practices existing in a context of other everyday practices with which they are intimately entangled, to be explored in the remainder of this work.

2.6 Summary

This chapter began by presenting practice theory as a potential alternative to more individualistic and deterministic characterisations of social change. Practice theories readily pointed out the limitations of such a reductive approach, offering a more theoretically satisfying and conceptually sophisticated recursive dynamic in its place, thereby neatly transcending dualistic conceptions of structure and agency. However, the 'flat ontology' of the practice idiom, in the same stroke, eliminates the convenient analytical bedrock at either extreme of individual and structure. This creates a potential paradigmatic incompatibility in policy-making circles, where a practice theoretical approach demands a fundamentally different problem framing from the outset.

Central to this ontological and epistemological tension is the dynamic and recursive relationship between practice-as-performance and practice-as-entity that sits at the heart of the practice idiom. Much of the difficulty lies with the elusive nature of the practice 'entity'. These entities are commonly characterised as involving the dynamic interaction of a number of 'elements'. As noted, the danger of this conception is that these elements – as 'things', or nouns – run the risk of being erroneously considered as static, or even conflated with the practice itself. Practices are actually recognisable sets of activities – "regimes of activity" (Nicolini, 2017b; Nicolini & Monteiro, 2017) – where it is the *doing* itself that is the recognisable entity. They are a noun that relates to a verb – a *way* of doing things – and therefore difficult to express in more familiar, static terms. Nicolini (2017b, p. 29) warns that "we are inept in dealing with fluid entities" and, while practices can be easily referred to in the everyday vernacular, they are notoriously difficult to analyse and represent more formally.

Significant questions arise as to the nature of how practices change and, especially, how they may *be* changed. We have seen that practice theories can readily account for the stabilisation of practices, where an emerging or changing practice entity refines and shapes individual performances until they begin to converge upon a recognisable set of actions and a context that reinforces those actions. What is much less clear is whether, and how, adaptive individual performances shift practices, especially in substantive ways. We have seen that gradual shifts in performances – the way things are done – can correspond with shifts in the observable practice entity, however, the causation and mechanism for such change is not at all clear and may well lie, appropriately, outside of the scope of practice theory itself.

The primary challenge for changemakers, then, is precisely that practices arise from what people do, and consist in, and through, the ongoing doing of that doing. In any setting, but especially within

liberal democracies, changing what people do, especially at the micro-scale of mundane everyday activities, is incredibly difficult. Individual actions – performances of a practice – are uniquely adaptive responses performed in the context of a vastly complex array of other practices taking place within a social and material world. Schatzki (2009, 2010) points out in great detail that actions remain indeterminate until the very moment of acting, which creates a temporal and causal problem for anyone wishing to change the nature of that acting. It means that practices, as ways of doing things, can only be recognised from *past* instances of such acting, and attempts at intervention in future performances can generally only be achieved by tweaking the *context* for *future* acting – but, of course, the success or failure of that intervention can, again, only be determined after the fact, and causality within practices is notoriously difficult to pin down. Some very specific types of action can be directly regulated or prohibited through carefully specified laws, such as criminal acts, however, there are practical limits to the number of such actions that can be suitably defined and then enforced. The mundane multitude of aspects of everyday life can never be directly policed in such a direct manner.

This means that governance – defined as attempts to intervene in or shape what people do in some way (Schatzki, 2015) – becomes a complex, distributed affair which cannot directly intervene in (most) action. It can only intervene in the *context* of that action – to indeterminate effect and for which the outcomes cannot begin to be evaluated until after the fact – and even then, direct causality may be difficult to establish. It is little wonder that simpler, more reductive schemas are favoured in political and policymaking circles where strong directives and clear accountability is demanded. The complex, elusive and circular logic of practices can be very challenging to digest at a theoretical level, yet alone be converted into practical and accountable intervention.

This work aims to distil the essence of practice theoretical terminology and concepts down to its simplest level, so that it may be more intuitively understood and instinctively enacted, especially where practice switching to more desirable alternatives is the desired outcome. It may be that this tendency of practice theories to account for change in terms of stabilisation is a *feature* of practice theory rather than a bug, or drawback. If it is accepted that societies require stabilised practices most of the time in order to function effectively, then perhaps expertise in how societies respond and adapt to change is in fact a vital contribution, even if the potential range of potential interventions is much too vast for practice theory itself to ever hope to contain. It is such questions that will be examined in the remainder of this work through an examination of utility cycling, as observed in the city of Christchurch, New Zealand.

3. Methodology

Practice *theory* is perhaps well named, because the body of literature on the topic typically concerns itself with theory, while having comparatively little to say on the topic of compatible application of empirical methods. Where empirical aspects are mentioned, this is typically only to emphasise that a broad range of approaches is required to capture the intricacy and richness of the practices in their performance. The notable exception to this silence is Nicolini (2009b, 2012, 2017b), who proposes a sophisticated methodological engagement with practices, but still ultimately comes to the same conclusion that a very broad 'toolkit' of empirical approaches is required, to be determined by the empirical setting.

This scarcity of methodological direction is perhaps a symptom of the relative youth and recent convergence of this theoretical body of work, where methodological questions are still in the process of being explored and debated. This can prove challenging for researchers in practice, especially in more modest projects and for researchers not practised in the empirical applications of the wide range of theoretical paradigms proposed by Nicolini. As a result, this thesis is also evaluating the methodological application of practice theory at the same time as its theoretical applicability.

This chapter will begin with a more theoretical positioning of the role of the empirical in the wider practice ontology, based especially on the work of Nicolini (2009b, 2012, 2017b), before looking more practically at the application of practice theoretical methods in the following section. In keeping with the breadth of approaches implied above, this research employed a diverse range of methods and data sources to build an overall picture the practice of utility cycling, which will be described in the remainder of the chapter. These included street observations of passing cyclists, semi-structured interviews with regular cyclists, involvement in a one-to-one travel planning programme and its related survey data, as well as government Household Travel Survey and Census data. These will be explained in detail in this chapter and follow on from the discussion of the empirical debate in practice theory presented in the previous chapter.

3.1 Practice methodologies – Practising practice theory

> "[The practice] approach allows us to think of practice not just as a process, but as something that humans do and, in doing, know and understand the practice" (O'Keeffe, Thomson, & Dainty, 2015, p. 417)

Although practice theorists have relatively little to say on the subject of methodology, as research is a practice itself, a discussion of *how* practice theory is practised cannot be isolated from a discussion of *what* practice theory is. Practice theorising provides intellectually pleasing accounts of dynamism, multiplicity and relationality in a 'flat' ontology of "practices all the way down" (Nicolini & Monteiro, 2017, pp. 111, 124). This self-referential, entangled and contingent ontology can provide challenges, however, when confronted with the real world and practice theory has struggled to provide a neat 'theory-method' package. Part of the challenge is that practice 'theory' is at best a 'family' of related theories (Reckwitz, 2002b), with a somewhat shared view of practice as the central unit of analysis, but "[d]espite this shared conviction, practice thought encompasses multifarious and often conflicting intuitions, conceptions, and research strategies" (Schatzki, 2001a, p. 14). Therefore, a single, consistent set of methodological guidelines is not immediately forthcoming, though it has been the subject of recent consideration (e.g., Halkier & Jensen, 2011; Hui & Schäfer, n.d.; Jonas, Littig, & Wroblewski, 2017; Schmidt, 2016). To date, practice theory has had a lot more to say about the *what* of practice the practice ontology than the *how* of the practice epistemology and methodology.

Schatzki represents this ontological emphasis well. As a philosopher, he focuses principally on developing his practice ontology and as a result has "assiduously avoided" epistemological issues (2002, p. 266). In the few places where he does mention these aspects, he suggests that a broadly 'ethnographic' approach is required to gain a deep familiarity with the intricacies and nature of the practices in question:

> "To acquire this knowledge, the investigator has no choice but to do ethnography, that is, to practice interaction-observation. […] There is no alternative to hanging out with, joining in with, talking to and watching, and getting together the people concerned." (Schatzki, 2012, pp. 24-25)

It is only through being fully immersed that the relations between "bundles" and "constellations" of practices become evident. The way these are travelled temporally reveals the organising dynamics of the timespaces involved in the practice – although he offers little on how this might be revealed.

In a guest blog post on practice theory methodology, he suggests that there is an art in creating "overviews", usually in narrative form, that can highlight both the detail and the big picture to present

the "gist" of the practice setting, drawing from the full range of tools in the "ethnographic" toolkit (Schatzki, 2016b). In Schatzki (2011), however, he notes the difficulty of achieving this, given that many of the aspects of what define practices – such as "skills, rules, dispositions – are non-observable in nature" (p. 1450).

More specifically, Schatzki also refers to following "chains of actions" and the nexuses and "practice arrangement bundles" they form that create and maintain phenomena (Schatzki, 2016b). Throughout Schatzki (2002), he provides detailed examples from two case studies, in order to demonstrate the importance of detailed accounts that trace these connected actions and the agencies involved:

> "to describe social life and social phenomena is to *detail the practice-order complexes* that are at once that as part of which human coexistence occurs and that which constitutes such phenomena. […] [M]y ontology implies that to explain social affairs is *to chart and to account for the agencies* that bring them about." (2002, p. 266, emphasis added).

This can be achieved through "sufficiently detailed surveyable descriptions of practices, orders, and complexes thereof" (2002, p. 235).

Shove also has little to say about specific practice methodologies, but instead Shove et al. (2012) offer the "methodological strategy" of focusing specifically on the elements of practices: "to follow the elements of practice and to track changing configurations over time" (p. 22). This strong focus on elements is achieved by "proceed[ing] as if elements can be separated out and somehow detached from the practices of which they are a part" (p. 15). But Shove is non-prescriptive about precisely how this should be achieved. She provocatively titled a guest blog post on practice theory methodologies: "Practice theory methodologies do not exist" (Shove, 2017). Through this statement, she was emphasising that when practices are adopted as the central unit of analysis, there are so many possible research questions that the methods adopted need to suit the specific research question. She suggests that there is no "ready-made guide as to how to proceed" (para. 13) and that such "struggles are simply the stuff of social science" (para. 14). This position is compatible with the intentionally "simple formulation" of materials, competences and meanings offered by Shove et al. (2012, p. 15), in that the simplicity allows flexibility to explore the dynamics of practice. As a result, the Shovian construction of practice theory is open and non-prescriptive methodologically, but also offers little guidance to the researcher.

In contrast to Schatzki and Shove, with their carefully constructed and articulated ontological positions, but little to say about methodology, Nicolini (2009b, 2012, 2017b) offers the converse – a "weak", eclectic ontology and a strong methodology: "to conduct practice, theory must be constituted

as a weak and modest ontology. Practice-based approaches need theory but should remain fundamentally a methodological project" (Nicolini, 2017b, p. 32). Yet, he also describes practice approaches as "fundamentally ontological projects" (2012, p. 9) but this is because the ontology, the process of defining a practice, should be the *end point* of an *empirical* project, rather than the setting off point. In this way, the practice becomes an "epistemic object" (Knorr Cetina, 2001, p. 181), which can never be fully resolved, but the process of attempting to yields insight into other phenomena. As a result, for Nicolini, pinning down a definition of practice is subordinate to using practice as a vehicle or mechanism for investigating social phenomena and settings – a theory and method package favouring the generation of questions over the provision of answers:

> "[A] good ontology has to remain open. […] [O]ntology is powerful not when it provides an imaginary self-contained world, but when it allows the world to speak through it." (Nicolini, 2017b, p. 25)

He criticises highly theoretical accounts, such as Schatzki's strong philosophical ontology, preferring, instead, to let the practice do the talking: "At some point, one has to engage with practice itself and allow the phenomenon to bite back" (Nicolini, 2017b, p. 25). For Nicolini, it is the enactment of a practice that is the primary unit of analysis and practice theory is the process of following those enactments out into the world. That process is therefore a performance itself: practices are performative, and so is the theory that bears their name.

Schmidt (2016) agrees that practices are not an empirical reality to be uncovered, but rather exist as a process for investigating social phenomena as an "ongoing practical accomplishment" and the "operational and ongoing establishment of social ordering" (p. 52). As such, the analysis of practices is a highly interpretative "second order" process of trying to understand how a group of practitioners accomplish and maintain the intelligibility of a practice. However, like Nicolini he refers to the lack of theoretical absolutes in practice theory, referring to its "negative epistemology" that is always challenging its own theoretical foundations. As a result he agrees that "no rules of procedure can be isolated from the objects of analysis and stated in a general way" (p. 52).

Nicolini's approach, then, is to develop a "package of theory, method and vocabulary" (2017b, p. 32) – a "programmatic eclecticism", or toolkit (2012, p. 213) – that allows the researcher to pick and choose methodologically from a range of related theoretical sensitivities, as well as providing the language to describe the practices encountered. Nicolini (2009b, 2012) comprehensively canvasses the "theoretical tributaries" of contemporary practice theories looking for theoretical and methodological positions advantageous to the concepts of the practice idiom, "switching theoretical lenses and re-

positioning in the field, so that certain aspects of the practice are foregrounded while others are bracketed" (2009b, p. 1391), which could be called "selective sequential repositioning" (p. 1396). He systematically borrows from other related traditions – such as ethnomethodology, actor-network theory, cultural and historical activity theory, discourse analysis and early and contemporary practice theorists – whose theoretical perspectives or methodological tools can be repurposed to enhance practice theoretical ends. For example, the way that activity theory focuses closely on objects – "the object of work" – can help practice theories in incorporating the material into their formulations. From ethnomethodology and its insistence that the world is in a constant state of social construction, he borrows its stringent methods for accounting for accomplishments of social phenomena by practitioners. From actor-network theory comes the conception of agency being constituted through observable, local patterns of relationship and a strong methodological orientation to "follow the actors" to trace the work that is done to build and maintain associations.

To apply this empirical focus, Nicolini (2009b, 2012) proposes a "zoom in-zoom out" metaphor for conducting practice theoretical research. This occurs in three "movements" (2012, p. 219): "zooming in" on the local accomplishments of a practice; "zooming out" by tracing the spatio-temporal relationships between practices and their elements; and then producing a textual account of the process. This process of "sequential selective repositioning" (p. 239) aims to guide the researcher in systematically foregrounding certain aspects of practices while backgrounding others, in order to allow the full complexity of practices to be explored and resist excessive reduction.

Nicolini (2012, p. 219) proposes a range of "sensitizing concepts/questions" as an "invitation to see" that demonstrate the wide range of potential dynamics that could be observed. Zooming in focuses on the practical details of how the practice is performed and accomplished, including how timing, tools and artefacts, bodies, practical concerns, adaptation and learning stabilise localised practice performance. Zooming out follows the local accomplishment of a practice out into the wider practice landscape to see how practices interact and affect each other, especially from a historical perspective.

This iterative zooming in and zooming out can then be considered complete when it is capable of generating rich, 'thick' accounts of why the practising is the way it is, and not some other way, and it can account for how the local expression of the practices links to wider or more distant variations. Nicolini (2012) claims that this zoom-in, zoom-out process can achieve a rich but credible and authoritative account of the performance of local accomplishment and its relationship to the wider textural practice landscape. He favours "thicker" descriptions that make the world more complex, rather than conveniently simple, calling for a practice "vocabulary" that provides a language, and rules

for using it, from which one can build practice accounts, but without being prescriptive about what that account should look like:

> "practice theory provides a set of concepts (a theoretical vocabulary) and a conceptual grammar (how to link these concepts in a meaningful way) that allow us to generate descriptions and 'bring worlds into being' in the texts we compose. For this reason, the ultimate test for practice theory is neither its coherence nor elegance but its capacity to create enlightening texts." (Nicolini, 2017b, p. 24)

Nicolini's eclectic approach aims to allow for the diversity within practice theories, without trying to unify them, and leaves the practice of practice theory open to express the diversity of practices in the world.

It is interesting to note that Nicolini's list of sensitising concepts is similar Table 1 that I compiled (on p. 27) identifying the key ontological principles of most contemporary practice theories. This suggests that Nicolini's methodological approach is still ontologically informed and still draws upon practice ontologies: he is proposing sensitivity to the key ontological aspects of practice theory. Therefore, although these different positions on practice theory methodologies appear to be conflicting, they are in fact making similar points. Shove (2017), in saying that practice theories methodologies do not exist and Nicolini (2017b), in asserting that practice theory can only be methodological, are ultimately both wanting to leave their approaches open to the vast diversity of practices that are possible. The ontological formulation offered by Shove et al. (2012) is intentionally kept simple to allow focus on the dynamics of the practice and Shove (2017) prefers to let the research context drive methodological choices. The empirical freedom that Shove achieves through not specifying methodologies, Nicolini (2009b, 2012, 2017b) instead aims to achieve through a carefully defined process for engaging with practices to allow a similar flexibility. Schatzki's (2011, 2012, 2016b) entreaties to engage deeply and ethnographically with practices do not disagree with these positions.

A potential issue with Nicolini's highly comprehensive and detailed methodological toolkit for engaging with practices is that it may be misconstrued as a prescription or requirement, similar to Nicolini's criticism of the same for practice ontologies. Nicolini, and to some extent, Schatzki, tend to imply that practice theory research must be complete and exhaustive, following every connection and every relationship between practices from many theoretical angles. However, such emphasis risks the perception that less comprehensive practice research is not valid. At the same time, it suggests that a fluency in a diverse range of empirical methodologies is required, something not realistic for all but the most experienced social science researchers. Were this to be true, then practice theoretical research could only ever be restricted to very large, well-resourced projects. To be successful

empirically, practice theory must also be accessible to partial and more modest practice accounts, so that collectively a body of work may continue to explore the epistemic object that is a practice, without any individual project entertaining the illusion that it can achieve a complete account on its own.

However, for Nicolini, the ultimate test of practice theory is to generate "enlightening texts" (Nicolini, 2017b, p. 24) and to provide a "convincing explanation of why the practising is the way it is, and not otherwise" (Nicolini, 2012, p. 238) and how it connects to other practices and effects. Therefore, as with any writing, while there may be guidelines and suggestions, there can be no hard-and-fast rule as to what construes as "enlightening" or "convincing". This leaves flexibility for the research to be complete within the objectives and questions of the research, which may not require complete enumeration of the practice and its associated practice landscape. What is deemed sufficient will depend on the intersection of the research practice and the practising in question, and therein lies considerable flexibility. This underscores the practice theoretical insistence that there is no external refuge from practices – for researchers or policymakers. There is no separate practice 'out there' to be discovered, only an epistemic object to be engaged with contingently and relationally.

Gram-Hanssen (2011) demonstrates a process for working within this methodological flexibility of practice theories. She summarises the different practice theory formulations in terms of their key "elements" (such as materials, rules, understandings, competences, etc.). She then evaluates each of the elements in terms of relevance to her particular research question and on that basis applies those aspects in her own research. This emphasises Shove's assertion (Shove, 2017) that the research question should drive research decisions, while also selecting areas of focus similar to Nicolini (2012).

Ultimately, given the huge diversity of practices, practice theories and potential research contexts in which they could be applied, no ontological nor methodological prescription could ever encompass all possibilities completely. However, Nicolini's attempts to translate the 'what' of the general ontological agreements of practice theories – especially of the Wittgensteinian-Heideggerian persuasion – into a practical "toolkit" and "vocabulary" from which to construct rich narratives of practising offers the most useful starting point for a methodological approach, into which some of the concepts of Schatzki and Shove can be integrated. .

3.2 Practice theory methods

Although there is some theoretical engagement with the relative importance of ontology and empirical observation, as discussed above, there is very little practical guidance for the researcher on

how practice theory should be conducted in terms of specific research methods. For Shove (2017, para. 14) this is "simply the stuff of social science", for which there can be no simple prescription of methods. However, some brief guidance can be gleaned from the literature.

Where methods for empirical engagement are mentioned directly, there is a general agreement that ethnographic methods involving in-depth qualitative methods such as participant observation are superior to personal accounts such as interviews on their own. Nicolini, for instance, rejects "post-hoc" accounts on their own out of hand:

> "For example, studying practices through surveys or interviews alone is unacceptable. These methods are, in fact, as unsuitable for studying work practices as they are unfaithful to the processual ontology that underpins the ethnography of practice approach. Studying practice-building exclusively by post-hoc verbal accounts is, therefore, an oxymoron." (Nicolini, 2012, pp. 217-218)

Authors such as Martens (2012) and Pink (2011a) also promote the importance of direct observation of the embodiment of practice over interviews alone.

However, as Halkier (2017, p. 193) and Atkinson and Coffey (2003) assert, direct observation is not necessarily the "gold standard" that it can be assumed to be. Favouring direct observation in this way flies in the face of the need for methodological flexibility defended by authors in the previous section. Halkier (2017), for example, encourages at least a mix of methodologies, noting that "different research interests call for slightly different methodological research designs" (p. 193). She notes that there are situations where the conscious deliberations of participants may be appropriate. Hitchings (2012) observed that participants are quite able to talk about everyday practices:

> "respondents emerged as entirely able to talk about relatively mundane actions […]. Indeed doing so provided various insights regarding the ease with which routine practices become entrenched and how doing differently could be encouraged." (Hitchings, 2012, p. 65)

This is a finding seconded by Strengers (2013, p. 68), who used methods of "defamiliarisation", inviting participants to explain their practice as if to "someone from Mars" completely unfamiliar with the practice, in order to elicit more detailed responses. Nicolini (2009a) similarly proposes the "interview to the double" where participants are asked to explain their practice as if to a 'double' so that they could complete the same task themselves. He stresses though, that this is a useful alternative perspective, but only in conjunction with more direct observations as well.

Practices can be and have been analysed through a range of methods, such as mixed quantitative and qualitative methods (e.g., Browne, Medd, & Anderson, 2013; Kennedy, Krahn, & Krogman, 2013),

as rhythm (Pantzar, 2014) or even through computer simulation (Holtz, 2014). In fact, even Schatzki (2012) supports the role statistics can play in practice research in conjunction with qualitative methods. Browne, Medd, Anderson, and Pullinger (2015) observe how quantitative surveys, although frowned upon by Nicolini (2012) above, in isolation, when used carefully with more contextual qualitative methods, can add a demographic and population level perspective to practices not afforded by smaller qualitative studies. Browne et al. (2013) also note that such statistical representations can help communicate practice based findings to stakeholders more comfortable with seeing results expressed as statistics.

A wide range of methods, then, can clearly be applied to practice research, depending on the specifics of the research setting, however, when methods are mentioned in the literature, there is an emphasis on direct observation occurring at its centre. Other methods can provide valuable context, detail or reach, but the consensus favours a core of direct observation, due to the prereflexive nature of many aspects of practices. However, this also assumes that the prereflexive aspects of the practice are central to the research question, which may not always be the case, reiterating the caution suggested in the previous chapter about any absolute statements when regarding a topic as vast and as varied as the things people do.

3.3 Overview of methods employed

In this research, a range of methods were employed, including street observations of cyclists, semi-structured interviews with regular cyclists, involvement in a one-to-one travel planning programme and related survey data, as well as government household travel survey and Census data.

The methods used represent a breadth of engagement with the practice of utility cycling. Street observations of passing cyclists were performed early in the field research phase, with the intention of developing a broad picture of what utility cycling in Christchurch looks like. As a Christchurch resident and occasional cyclist, I already had a general awareness of the local practice, but more systematic observation helped me to get a better sense of the types of cyclist I would be engaging with, at least in the visible, external sense. These observations were followed by interviews with regular utility cyclists, conducted in order to gain more in-depth accounts of how, when and why these people travel by bike in Christchurch, especially relative to their use of the car, in the context of their daily lives and personal life histories.

During the interview process, an opportunity arose to participate in a travel planning programme conducted by an amalgam of the local council authorities. This involved talking, one-to-one with office workers about their travel options into the central city, with a preference for active and non-car modes. This process allowed me to witness the deliberations and sense-making of a large number of individuals as they considered an actual trip (to and from work) that they were about to have to make. It was also very serendipitous timing as it offered a deep immersion into the inner workings of the practice of everyday commuting, which yielded insights that helped with the interpretation of the wealth of data that was emerging from the interviews. It also provided me with access to a large amount of related survey data to an extent that I would not have been able to gather independently. This allowed me to gather 'shallower' data but over a much wider range of people than the interviews, providing a rich vein of information that complemented the depth of the interviews well.[11] Government statistical data from the Household Travel Survey and work travel in the Census then allowed some of these factors to be generalised to the population level.

These research methods are summarised in Table 2, arranged by depth and breadth provided by each method.

It should be noted briefly at this point why direct, detailed observation of actual cycling practice was not conducted. Although direct observation is often upheld as the "gold standard" for practice research (Halkier, 2017), in this research, this was found not to be the most appropriate method, for several reasons.

First, everyday transport is a widespread practice that almost everyone engages in on a daily basis, therefore it is a practice with which I, as the researcher, the interviewees and the reading audience will be well acquainted and communication of concepts would be easy for all concerned. Nicolini (2017b) stresses the importance of directly "witnessing the scenes of action" as "studying a new or unfamiliar practice without familiarising ourselves with it would be logically impossible" (p. 27), but he concedes that this is not so necessary in widely familiar practices: "We can dispense with observing how people shower (vs. take bath) because we are competent in this practice" (p. 27). But caution

[11] Involvement in the programme also demonstrates the value of becoming immersed in the practice in question, as it allows serendipitous chance encounters such as these that would not have happened if not for connections with others involved in cycling research and advocacy.

was still required, however, to ensure that my own experiences of cycling did not limit my interpretation of others' accounts.

Table 2: Summary of data sources used in this research

Data source and abbreviation	What it may show	Data
Individual – in-depth		
Cyclist interviews	Daily lived experience, motivations, history, how they make it work	20 interviews
Personal travel diaries	Details of daily travel over a few days and any issues encountered.	8 completed before being discontinued
Travel planning Phase 1	Direct observation of the way people weighed up their options for travelling to work	Around 1500 people spoken to one-to-one (271 personally). Interviewer written notes available.
Travel planning Phase 2	More detailed consideration of barriers and benefits by mode, including cycling	138 spoken to. More structured data collected
Individual – at scale		
Street observations	Bike type and configuration, clothing, gender, speed	526 cyclists observed at 8 locations.
Travel planning surveys	Before and after moving office, including home suburb location and reasons influencing modal choice	1151 survey responses including freeform comments
Population level		
Household Travel Survey	Details of individual trips by distance, purpose, gender, age, time of day, number of children, home location, etc.	In Christchurch: 3400 households, 8000 people, 70,000 trips, 1900 bike trips.
Census travel to work question	Geographic distribution of cycle commuters	Full population sample.

Second, as a common, mundane practice, participants would have little to deliberately or subconsciously hide. And, while there could be some tendency to exaggerate environmental or social virtues or to minimise laziness or vanity, for example, these would be challenges faced by direct observation too, as the observee would be aware that they were being observed. In deviant or less common practices, a lot more effort would be required by a researcher to gain familiarity with the practice and overcome issues of trust and honesty, however, in this research there were no signs that such measures were needed.

Third, in line with Hitchings (2012) and Strengers (2013, p. 68), I found that people were well aware of their transport practices and able to recount them in some detail. This point was underscored by the

travel diaries I issued to initial interviewees prior to their interview. As described in more detail below, these were discontinued because they offered little analytical value and interviewees were quite able to recall the same details anyway. A further, related benefit of interviews was the amount of past data that it allowed access to. Direct observation or recording of performances can only capture a single performance, which is likely to be mundane and uneventful. Many observations would be required to cover a range of possible experiences. In the interviews, however, participants were able to recall a wide range of past performances, especially unusual incidents such as spending the day at work in leggings when forgetting to bring trousers or riding into a pole due to inattention. Single observations would be very unlikely to witness such rare occurrences.

The final point to make regarding the choice of *post hoc* accounts over direct observation relates to the overall objective of the research. As mentioned earlier, personal accounts after the fact via interviews can be a valid practice research strategy (Halkier, 2017; Hitchings, 2012; Strengers, 2013), especially where the reasoning of the practitioners needs to be explained. This research is interested in how participation in utility cycling may be increased. This means that the primary interest is in when utility cycling is employed as a mode of transport *relative to the practice of driving* – the dominant alternative mode. As will be discussed in more detail in the discussion chapters, this suggests that a large part of everyday transport practice involves some kind of navigation between the different modes, especially utility cycling versus driving.

By definition, practices are a 'space' of teleoaffective sameness. For that reason, some aspects within a practice may be carried out prereflexively, without conscious awareness – because the same end is still being achieved small variations in practice may escape notice – and for this reason, direct observation is important. As per Halkier (2017), the distinction lies in whether the primary interest is in tacit aspects of the practice or more explicitly normative considerations. In this case, the practice of interest is how people switch between modal practices, something that cannot be done without awareness, nor without *asking* participants about their reasoning. Even if this reasoning is misguided or inaccurate in some way, it is the same reasoning that would face a traveller who is faced with a choice between modes. Changing between practices – each with a distinctive teleoaffective and material character – requires a conscious choice. Like a fork in a path, a deliberate choice needs to be made whether to ride a bike, drive or take some other mode. As will be argued later, I am proposing that the practice of everyday transport, of which utility cycling is a modal subpractice, is in fact to a large extent a practice of '*choosing*' *between* modal practices – and therefore brings the consideration more into the realm of teleoaffective distinction rather than prereflexive sameness. Per

Shove (2017), the specifics of the research question can shape the appropriate methodology. For this question, the unarticulated aspects of the practice were less important than those that are more conscious, intentional and able to be recalled and described, as they were the aspects required to 'choose' between practices.

This aspect of practice methodology is not raised clearly in the practice literature. My initial intention was to directly observe some of the research participants, as per convention, however, my instinct was that this would add little to my research. The above reasoning took some time to resolve, as it went against the grain of the little empirical advice available. This suggests that broader methodological guidelines are required for the doing of practice theoretical research, that are suitable for the situated, practical doing of research and less toward philosophical or theoretical purity. Practice theory also needs to attend to its own practical intelligibility, in other words.

3.4 Street observations

My investigation into the practice of utility cycling in Christchurch began by simply observing cyclists on the streets. This was primarily a qualitative exercise to get a sense of how cycling was generally done in the city. This was supported by some counting of some of the basic attributes of the cyclists to the extent that they could be observed, such as gender, the type of bike, load carrying method, type of clothing worn, whether 'hi-viz' fluoro colours were worn and whether they were cycling with someone else. This was carried out by photographing cyclists on the streets and then recording the attributes after the fact (as cyclists passed too quickly to record the attributes in real time).

In total, 526 cyclists were observed in eight locations in Christchurch in July 2016 (winter) and February 2017 (summer) as detailed in Table 3. Most of these were observed during morning or evening peak hour traffic on the popular Strickland Street-Antigua Street cycle lane into the central city or the Matai Street and railway cycle lanes that form part of the new Uni Cycle separated cycle route. At these times, large numbers of cyclists are easy to observe, however, away from these areas or at off peak times, it is possible to wait for 30 minutes without seeing a single cyclist. Therefore, although I also obtained some images from other locations, their numbers are far fewer, and therefore any results do skew somewhat toward commuter cyclists (which is also the most common trip purpose by bike).

Although there are a number of innovative and collaborative photographic and videographic methods for capturing mobilities (e.g., Pink, Tutt, Dainty, & Gibb, 2010; Rief, 2017; Spinney, 2011), the aim of this phase of the research was simple, non-interactive observation and familiarisation. This

was then used to build the qualitative visual imagery of cycling in Christchurch presented in Chapter 5 as an instinctive introduction to the practice – both for myself at this stage of the research and the reader who is unfamiliar with the local instance of the practice. Although an indicative breakdown of numbers by attribute is also presented in Chapter 5, this was not intended to be a comprehensive, quantitative survey of Christchurch cycling.

Table 3: Street observations – July 2016 and February 2017

Date & time	Location	Count
Friday, 8 July 2016, 5:00 pm	Strickland Street	28
Saturday, 9 July 2016, 12:00 pm	Strickland Street	1
Saturday, 9 July 2016, 12:20 pm	Matai Street East	11
Saturday, 9 July 2016, 12:45 pm	Matai Street/ railway cycle path	8
Saturday, 9 July 2016, 2:20 pm	Buckleys Road near Eastgate Mall	5
Monday, 11 July 2016, 7:50 am	Strickland Street	51
Friday, 10 February 2017, 8:15 am	Colombo Street outside South City Mall	40
Monday, 20 February 2017, 7:45 am	Matai Street/ railway cycle path	214
Monday, 27 February 2017, 7:45 am	Antigua Street	132
Monday, 27 February 2017, 5:00 pm	Colombo Street – Sydenham, Beckenham	36
TOTAL		**526**

3.5 Interviews and travel diaries

The second phase of research into utility cycling in Christchurch involved semi-structured interviews with regular, everyday cyclists. The purpose of this phase was to gain insights from people who *do* cycle regularly for transport, rather than those who do not, which is often the emphasis in cycling research. As most cyclists also drive, this would allow interrogation of what determined whether and when they travelled by bike or by car. These interviews sought out people who regularly *choose* between transport practices (or at least made a decision at some point) rather than those who simply take the car automatically, without thought.

Semi-structured interviews were employed to allow the participants to speak freely about their cycling practice, in a conversational manner, but allowing scope for prompting, clarification and elaboration to ensure coverage of the required topics (May, 2011, pp. 134-136). The interviews began with a very open question (drawn from Aldred, 2015, p. 694), asking, "Can you tell me about cycling in relation to

your life?" The interview was then guided by a sheet of brief prompts for me as the interviewer (see Appendix 9.2 on p. 257). These began with a high degree of breadth and detail in early interviews as I became familiar with was important, but these quickly simplified to a smaller, more usable number. Interviews ranged from 20 to 90 minutes in length, typically taking around 45 minutes. They were conducted in cafes, private homes or workplaces and all were recorded on a digital audio recorder, with the written consent of each participant. I also took photos of some of the participants' bikes (see Figure 27 on p. 145), where this was possible, with permission.

In total, 20 people were interviewed, including two married couples, with an even split of male and female participants. Most were within an approximate 35-55 year old age range. Of these, 11 had children, 8 of whom cycled. Most participants rode mountain bikes or hybrid style road bikes, but four rode electric bikes, three (including one of the couples) used a cargo bike and one used a bike trailer. Four of the women preferred stylish upright bikes and five of the men rode single speed bikes.

Participants were recruited either through personal connection, personal invitation by me on the street, personal reference by participants ('snowball sampling') or through advertising on local community and cycling Facebook groups. Most of those expressing interest in participation were asked to complete an online sign-up form which also served as a screening survey for sampling purposes (see Appendix 9.3 on p. 259). This process ensured that participants were regular cyclists and that there was an even gender split, a diversity of ages and a range of types of cycling represented.

Additionally, while completing the interviews an 'ICEcycles' event was held, providing free bike repairs and maintenance in the predominantly lower-socioeconomic Inner City East area. With permission from the organiser, Steve Muir, I spoke to some of the participants and recorded the conversations, with their permission. This was an unplanned, opportunistic move, rather than by design – in line with the principle of immersion in the practice discussed earlier. It provided an opportunity to obtain some insights from a lower socioeconomic group and some of their comments have been included in the findings.

As mentioned earlier travel diaries were issued for the first eight interviews. Travel diaries (see Appendix 9.1, p. 255) were developed based on the 'memory jogger' used by the Ministry of Transport in their Household Travel Survey (Ministry of Transport, 2015b). My intention was to use these as a conversation point during the interviews, however, I found that they were not necessary to draw participants' attention to the details of their own travel and often the diary became a distraction, or

simply revisited issues already discussed. Diary entries had little analytical value, tending to be banal, simply listing locations, with only an occasional comment. In the few cases where more substantial comments were present, the participant had been able to recall those issues in the interview anyway. As a result, due to the logistical difficulties in getting the diary to the participant prior to the interview and their lack of analytical or memory jogging value, the diaries were discontinued after the eighth interview. For such a method to be useful, it would need to be executed at much larger scale, but, as this was merely intended as a memory aid to the interview, this level of data was not required.

All interview recordings were transcribed, either by typing directly or using Nuance's Dragon NaturallySpeaking voice recognition software. The latter was used primarily to avoid potential repetitive strain issues from the large amount of typing, rather than for speed. It was used by verbally repeating what was heard on the recording into a microphone and took about as long as typing once corrections were made to the voice recognition entries.

3.6 Travel planning programme

During the interview process in late 2016, an opportunity arose to be involved in a travel planning programme for office workers in Christchurch. Following the Canterbury earthquake sequence of 2010 and 2011, the central city of Christchurch was largely abandoned and many buildings demolished. As a result, many corporate offices and government departments were forced to relocate their offices to industrial complexes in the outer suburbs. These complexes typically had large car parks immediately outside the building and were often away from central bus routes. As a result over 70% of people drove to work at these locations. Five years after the earthquakes, however, the central city was beginning to be rebuilt and many offices were ready to relocate to a new, central city location. The issue, however, was a lack of car parking in the central city, and many workers, some of whom had begun work since the earthquakes, were concerned about how they would get to work without freely available car parking.

The travel planning programme, undertaken by the Travel Demand Management section of the Greater Christchurch Partnership, arose in response to this concern. I was one of several people recruited and trained to advise individuals on their alternative transport options for commuting to work in the central city. This involved visiting the suburban offices prior to their relocation to the central city and talking with office workers in person. Our job was to talk one-to-one with staff members at their desks to work through their commuting options, with an emphasis on non-car options.

Typically, the process involved scavenging a free chair and sitting with each staff member at their own desk and beginning with an open question relating to what consideration they may have given to travelling to the new central city office location. Our task was then to explore their non-single-occupancy-car options, namely bus, cycling, walking or ride sharing (carpooling). Usually this led to referring to a map or bus scheduling tool on their computer and talking through their various options and educating them about alternatives to the private car. On the whole, the programme was well received by participants. Most were quite keen to talk to us and our presence in an area of an office would generate some conversation and banter relating to transport options among colleagues.

In the end, I worked with 271 individuals from several organisations. Through that experience I was able to witness the process of individual modal choice many times over, which provided me with some of the insights central to this thesis. I had witnessed the *performance* of the act of modal choice and it had provided an orienting principle for the analysis of my interview data, as well, introducing a clarity that had been lacking until that point.

James Young, from the Travel Demand Management team, was interested in collecting data and producing research from the project and allowed me access to all of the data collected in the project for this research. From the interviews themselves, summaries were recorded by each consultant and I recorded my overall experiential insights described above in my research diary. The initial one-to-one travel planning sessions were also followed up by online surveys and a second round of personal sessions in the new offices. The online surveys included 1151 respondents across a number of employers and compared their travel modes before and after their move to the new central city office. This included a rating of the major influences on their commuting modes as well as a number of freeform comment questions relating to their commute, as typed in by the participants. Questions relating to benefits and barriers of the different modes from a smaller survey were also included. There was also a "Phase 2" of personal engagement with 137 office workers that included more structured data collection, including seeking the "barriers" and "benefits" to the different modes. The freeform comments from the surveys and notes from the Phase 2 contact provided around 1300 responses in total. As I was unlikely to be able to collect such a quantity of data so closely related to my experiential observations independently, or to have such extensive access to participants, I included these data in my research. I was not involved in the design of the survey, however.

The freeform questions in the survey which were coded and analysed related to:

- Influence on modal choice

- Explanation to support mode share numbers
- Reasons that a mode was tried but discontinued
- What would encourage you to cycle
- Benefits and barriers to cycling mentioned in travel planning Phase 2.

3.7 Household Travel Survey and Census data

The findings in Chapter 4, which came mainly from the travel planning data with some input from the cyclist interviews, were supported by government statistics. This was useful for an aspect of "zooming in" and then "zooming out" on the practice (as per Nicolini, 2009b, 2012), as it allowed some aspects of the practice to be followed out to a much larger population scale. Schatzki (2012) himself supports such a move, making a "pitch for statistics":

> "Statistics provide overviews of the quantifiable features of large classes of phenomena and thereby contribute to the attainment of overviews of social affairs. As such, statistical information can make key contributions to, say, institutional choices and the conduct of life." (Schatzki, 2012, p. 24)

In this case, data from the 2003-2014 Household Travel Survey (Ministry of Transport, 2015b) were particularly useful. These provided extensive data on over 70,000 individual trips in the Christchurch area made by over 3,400 households, capturing detailed information about distance, mode, trip purpose, travelling with children, time of travel, etc. This enabled many of the qualitative findings from the data to be "zoomed out" to the population level for the charts shown in Chapter 4. Additionally, matching the timestamp of trips in the Household Travel Survey to historic weather data available from the National Institute of Water and Atmospheric Research (NIWA, 2018)[12] and sun position data from the National Oceanic & Atmospheric Administration (NOAA, n.d.) enabled Household Travel Survey trip characteristics to be mapped to weather conditions and the hours of darkness to assess their impact on cycling trips. Data from the New Zealand 2001-2013 Census also provided data on means of travel to work on Census day (Statistics New Zealand, 2014). The Census data are restricted to commuting alone, however, they provided population wide data down to the meshblock level (typically the size of one or two blocks in an urban area) which was useful for mapping purposes. Maps were produced using ArcGIS ArcMap 10.5.

[12] Based on their "Kyle St EWS" weather station, based in Riccarton, Christchurch.

The Household Travel Survey data provided a powerful analytical tool through which to analyse and generalise transport practices. It provides sample sizes not possible in smaller research projects. Combining it with weather and solar data, while analytically challenging, provided powerful insights into the actual impacts of weather and data on cycling rates. A challenge with the Household Travel Survey data for cycling in particular, however, was that it was difficult to separate recreational cycling from utility cycling. The trip purpose appears to be self-selected by respondents and it was not clear weather a bike was being ridden to a destination for recreational purposes, such as a movie, or whether the cycling trip itself was the recreation. Nevertheless, especially with trip distance, to avoid the data being skewed by long training rides for recreational purposes, trips marked as recreational were separated. Additionally, unfortunately, the Household Travel Survey does not record load carried, so this aspect could not be generalised.

3.8 Analysis

The interview data and qualitative travel planning survey comments were, separately, coded thematically (Braun & Clarke, 2006; Saldaña, 2015) for a broad range of practice-related themes. For the interviews, around 150 initial codes emerged, organised into 18 groups, and for the travel survey comments, around 60 codes emerged grouped as benefits or barriers. For both data sources the codes stabilised, or 'saturated', very early in the analysis, and relatively few theme additions were required after the first 10-20% or so of the data had been coded.

The early interviews were initially coded using MaxQDA qualitative data analysis software (which is similar to NVivo). This was quickly abandoned, however, as I found broader initial coding more difficult in the software and found the proprietary format restrictive. Instead, I used Microsoft Excel for coding to allow for more flexibility. The interview transcript was copied into Excel, with each question and response appearing a separate row. In order to group rows of related questions and answers into cohesive passages, I wrote an Excel macro to merge related text into a single row, also merging any codes already assigned, at the same time. I then used columns with headings as codes to apply an initial coding, by placing a '1' in the corresponding column in the row relating to each passage of text. Due to the number of themes, columns were grouped so that they could be collapsed and expanded. Further macros allowed double clicking to quickly enter the '1' value to assign a code and to expand and collapse categories for faster entry. The travel planning survey comments were coded in a similar fashion.

The research design was created and the coding performed with a practice sensitivity in mind, however, in actuality, the codes emerged thematically from the data themselves. The codes emerged and stabilised, or 'saturated' relatively quickly – in both the interviews and survey comments – so that few new codes needed to be added after the early coding. The initial codes were readily able to be categorised into more focused codes and themes, revealing a relatively long, but stable, list of factors associated with utility cycling and transport practices. (Table 5 on p. 101 and Table 9 on p. 149 show the types of codes that emerged.) The groupings of codes related to: different modes of transport, the bike itself, equipment, carrying things, infrastructure, trip attributes, traffic interaction, the act of riding, logistics, utility, barriers, benefits, type of cyclist/ cycling, perceptions, learning the practice and safety/ security. These agreed broadly with the more detailed 'zoomed-in' aspects of Nicolini's proposed approach (Nicolini, 2012) and the Shovian elements – materials, meanings and competences (Shove et al., 2012) – and were able to be grouped under such categories.

However, these groupings on their own revealed little of analytical interest. There was certainly a wide range of issues that people talked about with respect to cycling and commuting, however, there was little clarity about how this might affect or shape the practice or the practical intelligibility of daily mobility. Simply looking for connections and interactions between elements yielded a bewildering array of possible combinations of elements, but with little substantive insight emerging from this process.

Clarity in this respect emerged from two sources: analytic 'memos' that I wrote summarising the overall account of each interviewee and the experience of the travel planning process. For some of the earlier interviews, I had written summaries of each interviewee's overall account of their cycling and transport practice, but I had not done this consistently. In the early interview coding process, I noticed that the place where any 'sense' was most evident to me in the data was in these few interview summary memos that I had written. All of the factors relating to the practice that had been identified as isolated, individual themes, suddenly made sense collectively in these summaries – as a whole narrative of that person's practice, rather than as a list of individual factors. There was a sense-making evident in the complete accounts of how each individual made cycling work for themselves as a mode of transport, in their unique situation. As a result of this, I completed summary memos for every interview and thematically coded these all as well.

At about the same time, I was also involved in the travel planning programme. Through this experience, I witnessed many people working through the practical logistics of how to travel into their new office every day. This provided me with a parallel experiential insight into how people navigated

their way through the same kind of factors that I was identifying in the interview memos, in order to make the trip work for them. As a result of this insight, I made notes of my travel planning experience and it also led to me using the detailed survey data from the same programme in this research.

What was missing in the initial elements based coding of the practice were the aspects of practice *ordering* that Nicolini (2009b, 2012) refers to in his sensitising questions. Simply identifying, grouping and linking the factors identified was insufficient. A more 'symmetrical' approach, such as the organisation of elements offered by Shove et al. (2012) offered a lot of analytical flexibility and would have been capable of capturing the sense-making dynamic via the 'meaning' element. However, in my early analysis, such insight was not forthcoming. The apparent simplicity of the Shovian model was deceptive, and in inexperienced hands, can simply become a typological exercise (although intended to be much more than this by its designers). As will be outlined in more detail in Chapter 6, viewing the data in terms of a practice landscape of interacting and interwoven practice entities was particularly helpful in providing an initial ordering of the observations and findings. This was further aided by Schatzki's concepts (Schatzki, 1996, 2002) of practical intelligibility (sense-making) and teleoaffective structures (what it is for and why it matters).

The "residual humanism" in these concepts provided an important orientation as a researcher – providing a kind of analytical 'true north' when lost in the wilderness of practice detail, through a recognition that practices are ultimately by people and for people. This provided some sense and ordering for me amongst all of the abundant detail, from which to proceed with further analysis and interpretation, which follows in the remainder of this document. In my experience, the identification of aspects of the practice entity, links to other practices and even individual meanings and perceptions in isolation carried little weight until a core of intelligibility – sense-making – could be identified to provide a teleoaffective *raison d'être* to orient the practice. In this way, although apparently much less readily accessible than the Shovian account, Schatzki's contribution actually played an important role in the empirical analysis in this research, despite his relative silence on the matter.

Overall, what was required was to analyse the data with a sensitivity and sensibility to the performativity of practice (Sedlačko, 2017). Nicolini (2012, p. 219) proposes "sensitizing concepts/questions" as an "invitation to see" where practice theory is providing a kind of language for describing practices, but building a narrative determined by the practice itself. To this end, the narrative sense-making of the academic writing itself was a key part of the analytical process. Nicolini (2017b, p. 24) makes this point by requoting Latour, but replacing the word "network" with "practice":

> "The text, in our discipline, is not a story, not a nice story. Rather, it's the functional equivalent of a laboratory. It's a place for trials, experiments, and simulations. Depending on what happens in it, there is or there is not an actor and there is or there is not a [practice] being traced. And that depends entirely on the precise ways in which it is written— and every single new topic requires a new way to be handled by a text." (Latour, 2005, p. 149)

In this research, writing up the results with a practice sensitivity to the relationality and performativity of practices was a key part of the analytical process as the individual factors identified thematically only made sense in the completeness of the narrative of a whole performance or whole individual practice.

4. When utility cycling is done in Christchurch

As outlined in the preceding chapters, the intention of this research was to both apply and evaluate practice theory as a potential framing through which to consider the promotion of utility cycling, with a focus on the lived experience of the person undertaking an individual trip. This chapter, and the one that follows, report on the findings from the research that relate to this intention. This chapter begins by considering utility cycling as modal 'choice'. It considers *when* utility cycling is done in Christchurch, as in, the circumstances in which utility cycling *works* as a mode of transport *relative* to the other modal practices – especially driving – all in the context of the other activities and practices of everyday life that transport practices occur among and enable. In this way, this chapter 'zooms out' to consider utility cycling in terms of the wider practice landscape within which it takes place. The following chapter then 'zooms in' on more of the specific details of how utility cycling is performed in the city. The next chapter looks more specifically at *how* everyday cyclists make utility cycling work for them as a mode of transport – still relative to the other modes, but with more of an internal focus on utility cycling itself and how the details of its execution affect its relative utility to the other modes.

This chapter, then, examines utility cycling at the whole-practice level relative to the other modes. Transport is marked by highly distinct and discrete modal subpractices that are distinguished and strongly materially mediated by the mechanical form of the conveyance employed and their supporting infrastructures, and result in very different experiences for the person travelling. Each mode of transport affords a very different set of capabilities, weaknesses, vulnerabilities and embodied experiences, and it was at this level that participants were observed to first make sense of everyday transport challenges. Thematic analysis of especially the travel planning survey data, supported by interview data where appropriate, was applied to explore factors that relate to everyday travel. It is at the level of these factors that the modal practices are compared in this chapter.

This initial, coarse level of breakdown of utility cycling practice into factors affecting modal 'choice' generally was useful for laying out the practice landscape of utility cycling as 'modal 'choice' – the attributes and factors that play a part in its position as a practice, relative to the other modal practices. Each factor – such as, distance, time pressure, weather, loads to carry, etc. – is discussed on its own terms, with some consideration of interaction with other factors and wider generalisation through analysis of the Household Travel Survey and Census commuting data.

The question the current chapter explores is how people encounter and make sense of these modal differences in their daily lives and the ensuing ramifications of these for the modal share of utility cycling at wider scales. Data for this exercise are primarily drawn from the travel planning programme introduced in the previous chapter, where office workers were offered individual travel planning advice with respect to their pending relocation to the central city with its limited car parking capacity. This begins with my personal experience and insights as a travel planner in the programme and then goes on to analyse freeform survey responses from 1000 participants following their office relocation. It also draws on the interview responses with regular everyday cyclists where appropriate, especially with respect to the factors that influenced when they would use their bike relative to the car and other modes.

Some factors may be discussed in both this chapter and the next, but the first (this chapter) will consider them at a modal level – i.e., how they distinguish the modes – and the following chapter will consider how everyday cycling is accomplished, but still relative to the other modes. So, for example, the impact of weather will be considered in this chapter in terms of how it impacts modal choice of *whether* to cycle, while the next chapter will look into the detail of *how* cyclists deal with it in terms of clothing, equipment, preparation and attitude, and how that compares to the experience of the car. This dual perspective then allows everyday cycling to be viewed both from within and without, and sets the scene for a later discussion about how modal 'choice' may be expressed in terms of practice theoretical concepts, in particular the relative utility of cycling relative to driving as a mode of transport.

4.1 The experience of the travel planning programme

The process of weighing up and considering a range of mostly functional characteristics of a trip was most evident in the travel planning consultations of which I was a part. As explained in the previous chapter, this process involved talking individually with office workers in 13 government departments or corporate offices that were about to relocate to the central city. The key issue for all of the central city offices was that parking would be much more limited compared to their current location, with only a small number of designated car parks and on-street and public parking either scarce and contested or expensive.

The aim of the travel planning programme was to encourage these office workers to adopt non-car alternatives when commuting to the central city in order to minimise further pressure on this limited car parking. It did this by adopting a benefits and barriers approach of the type favoured by much of

the mainstream research into utility cycling outlined in Chapter 1. The intention was to promote the benefits of active and non-car transport while attempting to address any barriers on a one-to-one basis. Although Figure 4 shows that there was a dramatic reduction in car use post-relocation, analysis of survey data from the programme suggested that the impact of the personalised, one-to-one sessions was limited. Only bus usage was shown to be statistically significantly higher for those spoken to individually when compared to those who were not spoken to. The other modes showed no statistically significant difference between participants and non-participants (Frater, Vallance, Young, & Moreham, 2020).

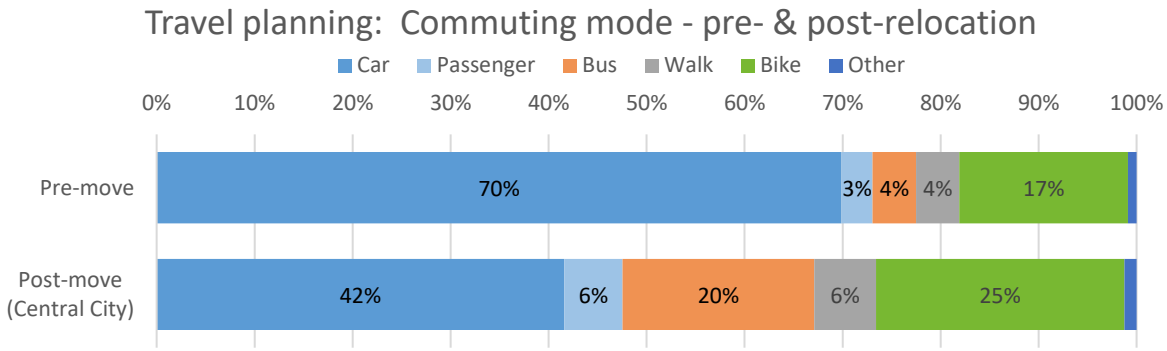

Figure 4: Modal choice for commuters to the central city before and after office relocation. Source: Travel planning survey.

Of the office workers approached to participate in the programme, while some had already considered and worked out their route and means of transport, many were somewhat anxious about the change and the unknowns it represented, and were receptive to information and guidance. Some, for example, admitted to not having ridden a bus for decades and to not even knowing how to catch one. There were also some people, however, who were a little resentful of the promotion of the benefits of active and public transport, especially after the initial briefing presentation, feeling that the genuine need of many to use the car was not being appreciated, despite assurances otherwise, and that they were being made to feel guilty. So, many participants were keen to explore their options, but some of those without non-car options appeared to feel singled out and shamed, suggesting a potential risk of backlash from promoting change to those unable to act on it.

Through the process of speaking individually to over 200 people about their daily commute and related travel requirements, I was able to witness many examples of how people made real-world everyday transport decisions. These travel decisions were primarily made as *modal* decisions: each mode was evaluated in terms of its ability to meet the specific needs of their trip into work. They would look closely at the maps and options and weigh up the typical distance, time and cost related

factors such as the proximity of the nearest bus stop, the bus travel time and cost, the suitability of roads for cycling or walking. They would also take other practical aspects of their very individual circumstances into account such as needing to take children to school or to after school events, a need to drive during the day for work purposes or to attend an event after work in another part of town. Many worked only during school hours and were time constrained in terms of meeting part-time working hour commitments and getting between work and their child's school in sufficient time for each. They may also have been anxious to be able to get home to children or elderly parents if needed urgently or already share a ride with a partner. Some had injuries that reduced their options. It quickly became apparent that everyone faced different, but very real, practical needs and challenges, and they were essentially 'trying on' each mode 'for size' – i.e., assessing each mode for its ability to meet their needs.

In most cases, 'hard' functional requirements took priority over more idealistic, 'nice-to-have' aspects. Car parking and journey distance or time being most frequently mentioned requirements, and 'nice-to-have' aspects, like exercise, environmental concerns or enjoyment of the trip, tended not to be mentioned at all, unless the functional aspects worked first. This meant that if a preferred non-car option also happened to *work* for people, then they were typically quite enthusiastic about that option, but if it did not work, it was difficult to argue with the logic of their preference for the car. For example, if someone lived on a bus route or easy cycle route that could have them at the office in 20 minutes, there was typically little need to convince them of that option – it would 'sell' itself. If, however, they lived in an outer suburb faced with a 55 minute bus journey or 45 minute bike ride down busy roads, compared to a 25 minute car journey, or had children to take to school, things to carry or activities after work, very few, if any, were convinced to take the bike or bus over the car, even if parking were difficult.

This experience countered the implication made in much of the pro-cycling literature reviewed in Chapter 1 that 'attitude' – implying a lack of environmental or civic concern – was a significant barrier to utility cycling. It backed the findings of those authors who found that within the lived complexity of everyday life, pragmatic details often militated against non-car alternatives (e.g., Anable, 2005; Jarvis, 2003; Mackett, 2003; Pooley, Horton, et al., 2013; Pooley, Horton, et al., 2011; Pooley, Jones, et al., 2013; Pooley, Tight, et al., 2011). Consistent with Mackett (2003, p. 347), I also observed that there were relatively few nontrivial reasons for using the car. Although we were trained to promote the health and environmental benefits of the more active or communal transport modes, time and time

again what I witnessed was people working through their options in a very pragmatic and instrumental way, leaving little room for personal ideals.

At the same time, however, there was quite a high participation in utility cycling amongst participants, even before the relocation – significantly higher than in the general population – 17% commuting by bike pre-move and 25% post-move (Figure 4, p. 91), compared to 5% of Christchurch commuters generally (Ministry of Transport, 2015b). Those that already cycled would typically quite simply state that they cycle now and intended to continue doing so and had already worked out a route. For many of these cyclists, cycling appeared to 'work' for them because they valued cycling as a mode of transport, usually for exercise and/or environmental or social reasons. At first glance, this observation may appear to support the assertion that cycling participation is governed by attitudes, contradicting the statement above. However, the nature of office work is better suited to cycle commuting than many professions and some of the organisations and professions involved are likely to favour a higher level of interest and enthusiasm for cycling than would be expected in the wider, general population. So, it is difficult to draw general conclusions from the sample.

Table 4: Number of modes of transport used reported in the travel planning survey of Christchurch commuters and Christchurch participants in the Household Travel 2004-2014 (Ministry of Transport).

Number of modes used	Travel Planning Survey (typical week)[1]	Household Travel Survey (modes per person over 2 days)[2]
1	55%	59%
2	35%	32%
3	8%	8%
4+	1%	1%
Total	100%	100%

1. Excludes walking from car or bus as separate mode, but counts carpooling as its own mode.
2. Excludes walking from a car but includes walking to bus stop as separate modes

It should also be noted from this programme that modal preferences are not exclusive for each person and that the same person may use different modes at different times. Table 4 shows that in a typical week, in the travel planning survey, 45% of respondents reported using two or more modes in a typical week (which excludes walking from a car or bus) and in the Household Travel Survey, a similar

42% of people reported using two or more modes over the two days that each person was tracked. This suggests that participation in each mode of transport is far from mutually exclusive.[13]

It was through participation in this overall process that I had the insight that what was of paramount importance for most people was simply *what works* for them. Overall, the key dynamic observed in the travel planning sessions and in the interviews was that people weigh up each mode against a number of factors specific to their unique circumstances – generally, or for a specific trip. It seemed that the process of modal choice, to a large extent, involved an exercise of matching modal capability to a fairly consistent set of factors – almost a mental checklist of factors that had to be taken into account, such as availability of parking, distance to travel, loads or children to carry, etc. – until a configuration of factors was found that worked for that trip. In each situation the factors were different, however, each person drew from a larger set of factors that was remarkably consistent across all participants collectively. The thematic analysis of freeform comments from the travel planning programme and the interview transcripts sought to identify the range of such factors.

For a particular person in a particular situation, there was usually a small subset of factors that were relevant in that moment. For one person, in one moment, weather and traffic might be the central issues, while for another person – or the same person in another moment – a need to transport children, carry several items and to travel quickly between destinations may have been the main challenges to address. Usually, practical or functional limitations or requirements took priority in terms of what was considered to 'work', as they often left less latitude for discretion, however, personal values or benefits could also play a role in determining what works, especially if strongly held. The key observation was that a whole set of factors had to come together into a configuration that worked *as a whole* – where all of the factors had to line up and make sense collectively for the person.

Also relevant to these observations was a second phase of the programme that followed up within the same organisations a few months after they had moved into their new office buildings in the central city. This phase was designed to consolidate on the previous visits by encouraging and rewarding modal change with further information, by identifying modal 'champions' and sharing their stories of the benefits of the alternative modes. A more structured approach was applied to identify

[13] Which can problematise the cohort model of Shove et al. (2012), whereby people are 'recruited' to or 'defect' from practices, because participation is determined at the trip level, not the level of the individual and, therefore, 'membership' of the practice does not have a clear binary nature.

benefits and barriers of the modes and to overcome them in order to encourage behavioural change. I only participated in one day of this work, but I found that the reception was very different. People were polite and provided information requested, but compared to Phase 1, it appeared to be more of a one-way process, without the curiosity and interest that existed pre-move. My sense was that once people had experienced the new commute they had a good idea what had worked for them or would work for them, and they needed little extra from us. Whereas previously we were the experts whose knowledge they were keen to draw on, they were now the experts in their own commute. This second phase was not as successful as the first and was not continued for long after my involvement. This observation is important because it showed that people were very well aware of what worked for them, and what did not, and once they had this awareness, there was little that could be added motivationally, because they were already doing the best they could for their situation.

It was due to having witnessed this overall process of the travel planning programme process that I sought out the survey data associated with it, as it appeared to be an ideal data source for identifying such factors, and it was for this reason that these data were incorporated into this research. The freeform comments from the surveys plus interview notes from the Phase 2 contact provided a valuable data resource from around 1300 respondents in total through which to further follow up my personal experience of the travel planning exercise and to complement the interview data from regular cyclists.

4.2 Identifying factors influencing modal choice

Thematic analysis of both the interview data and the freeform comments from the travel planning survey, conducted with a practice theoretical sensibility, revealed the full set of factors that people typically consider with respect to everyday travel. Only a small subset of these factors would be considered for any particular trip – depending on circumstances – however, overall, there was a large but stable group of factors that emerged and 'saturated' very quickly. This analysis suggests that before people head out the door to go somewhere, at some point they will need to consider aspects such as how far they will go, how much time they have to get there, who and what they might need to take with them or pick up at some point while they are out, the weather, terrain, traffic, parking, personal safety, what they are wearing, etc. The full range of such factors will be presented shortly, but before that, the factors that appeared in a rating question in the survey will be considered for an overview of what commuters considered important as well as some of the more general themes that emerged.

4.2.1 Rating factors from the travel planning survey

While the factors considered in this chapter come primarily from qualitative, thematic analysis of survey comments and interviews, the travel planning survey included a question asking respondents to rate a selection of nine factors by the extent to which each influences their modal choice. I was not involved in the design of the survey, so the factors were not chosen with this research in mind, nevertheless, the results are interesting and worth a brief interlude.

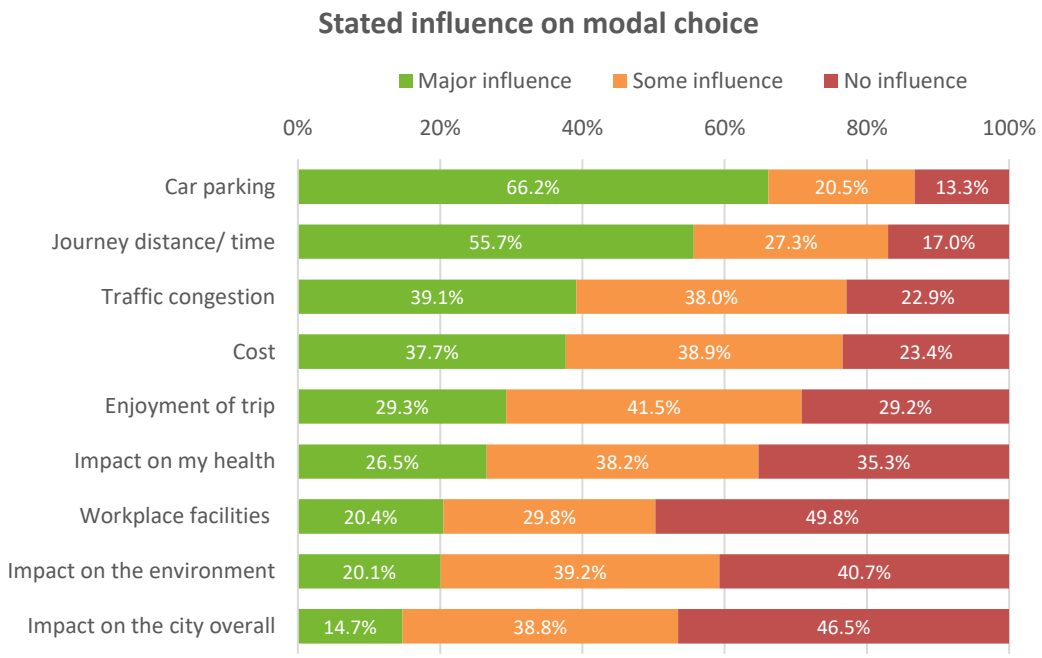

Figure 5: Stated factors influencing modal choice for commuting by central city office workers. Source: Greater Christchurch Urban Development Strategy – Travel Demand Management programme, 2017.

Figure 5 shows the overall rating of these factors from the survey, conducted after participants had moved into their new central city offices, ordered from highest to lowest influence. It supports my observation that practical, functional aspects of the trip attract the highest rating: availability of car parking and the time and distance of the journey rated highest for modal choice, followed by traffic congestion and cost. 'Softer' or values based personal factors were next – enjoyment of the trip and impact on health – followed by communal or global factors: impact on environment and impact on the city. Workplace facilities are mainly relevant to active transport users who may want to use a shower, locker storage and bike parking. Of note is that the top four factors are all functional aspects of the trip, which outranked personal factors, which in turn outranked external factors. This suggests that, despite the overall travel planning programme working hard to promote the latter five factors,

it was in fact the first four instrumental aspects that had the most influence – as I had experienced in the face-to-face sessions with commuters.

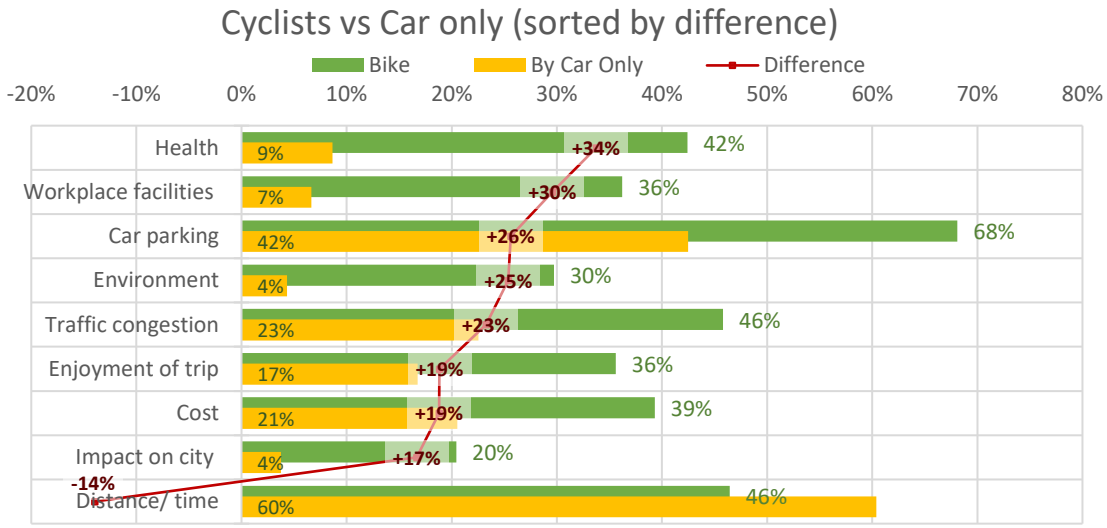

Figure 6: Cyclists vs car only: stated factors with "major influence" on modal choice for commuting by central city office workers – those who cycle at least some of the time vs those who only travel by car. Source: Greater Christchurch Urban Development Strategy – Travel Planning programme, 2017.

These factors become more interesting when the ratings of those who cycle to work (to any extent) are compared with those who only drive to work, either as driver or passenger. Figure 6 compares the percentages of cyclists and car users who rate each factor as a "major influence". This immediately highlights some marked differences in the responses of cyclists and car users. Cyclists rate all factors other than distance/time much higher than car drivers and passengers – sometimes several times higher. Cyclist ratings were higher on average by 20% (40% vs 21%[14]). Most notably cyclists rate the health impacts, overall enjoyment and the impact on the natural and city environment much higher than non-cyclists. These differences are supported by findings from interviews with regular cyclists, many of whom highly valued exercise, physical activity, being in the outdoors and impact of travel choices on the community and environment. Traffic congestion is a higher concern for cyclists, perhaps due to safety concerns associated with heavier traffic for a cyclist, or it may simply be as a reason for not driving due to a dislike of driving in traffic. Workplace facilities such as lockers, showers and bike parking were also rated much higher, unsurprisingly, given that they are designed typically with cyclists and other active transport users in mind.

[14] The difference of 20% is due to rounding.

The overall higher ratings by cyclists suggests a higher level of engagement by cyclists and more conscious consideration of their transport choices. This was consistent with my experience in the one-to-one travel planning sessions: cyclists tended to have already considered their options and worked out their new route prior to our visit. Cyclists seemed to be more aware of their options and engaged with them, perhaps because cycling requires more attention and focus to work, as will be revealed by the cyclist interviews.

What is also possible, however, is that there is a reverse causality in these ratings, especially in the environmental and city impact ratings. Although the interviews show that many cyclists are environmentally motivated and community minded, there is the possibility that some choose the rating that suits their mode of transport, even if selected for other reasons. For example, one interviewee who cycled to work in the central city mentioned the environmental aspects of cycling as a benefit:

> Tom: I guess, the environmental thing I probably do think a little bit more about, oh, well, actually that is better that I'm not having to start the truck and drive in and out of work, but that's probably more of a personal kind of attribute, you know, being a bit more environmentally aware than maybe others, or I think, yeah, now I'm biking well that does help a wee bit with carbon footprint or whatever it might be.

However, before the office moved to the central city, when his workplace was only 2 km from home and had plenty of parking, Tom would drive his large car or SUV ("truck") to work and then back home for lunch, in spite of living within very easy cycling or even walking range of the office. His "environmental awareness" appeared to only apply when cycling worked for him functionally. So, although this reverse attribution cannot be confirmed by these data, that possibility must be borne in mind.

4.2.2 The process of modal choice

The process of weighing up factors when selecting a mode of transport was exemplified well by some of the survey respondents and interviewees in particular. It is worth reviewing a selection of these as they exemplify the range of situations that people face every day in their travels.

The interviews with regular cyclists provided a unique perspective on some of the dynamics of the modal choice to cycle, relative to driving, because almost all also owned a car. As regular cyclists, they clearly do not lack the motivation to cycle for any personal reasons such as lack of fitness, health, general dislike of cycling, etc., so when they use a car over a bike, their reasons tend to highlight the

more functional limitations of the bike relative to the car. Like the travel planning participants, they would work through a range of factors when explaining the factors that influenced when they would travel by bike:

> Sarah: The time I've got available, how far I have to go and what the terrain is. So, with my bike, if it's up a big hill, it's not a runner. Um… And the weather at times, yeah, and how much I have to carry. I can't carry three big packets of toilet paper on my bike. I'd need a trailer for that.

> Ana: Like, distance… um, what the wind is doing. You know whether we're going to have a big headwind somewhere [on the cargo bike], um, the weight of what we're going to need to carry, um… Yeah, but, the temperature is not a problem. […] but most of the time it would be, the main consideration would be distance.

The significance of the factors would be highly situationally dependent, varying based on whether travelling alone, with children and time of day, for example:

> Nikki: Probably distance first.
> Chris: Yeah, well, yeah, and I suppose like for work, for me, it's just I'll bike. That's what I do. So, that's the decision made, unless I've got a meeting somewhere else. And then for other times […] for weekends and whatever else, it would be, yeah, distance and how much we're going to carry and that sort of stuff that would make it, and how many kids, you know, like soccer or elsewhere. […]
> Nikki: It would probably also depend on the time of the day. If we were going to something in the evening and the boys were with us, we'd be way less likely to cycle. Just for again safety, and getting home at the other end, I think, [laughs] and everyone getting cold. I think for me it's about distance.

Travelling by bike tended to require a large number of factors and conditions to line up to make it work, requiring more planning and preparation and generally making it a less flexible and 'spontaneous' form of transport than the car:

> Emma: If I'm leaving from home outside of, like, work hours and stuff, I tend to use the car for, like, visiting and… I feel like with my bike I tend to plan a bit more and I would tend to go, "Okay, going to go here and get XYZ or I'm going to go to so-and-so's house and back again," whereas with a car I feel I can be just a bit more free and… I'm not necessarily going to run out of puff or whatever or… yeah.

Some survey responses also demonstrated the array of factors they were faced with, but in these cases mostly to demonstrate why they had no practical alternative to the car. Their comments show that their requirements are often complex and that they have to go to some lengths to allow for the various factors in play:

> There are no direct buses into the city from where I live so I am getting dropped off by my daughter and she then drives to school because she can park somewhere reliable and close

> and my partner picks me up on his way home. Or I bike if it's not raining. Because I may need to use my car for external appointments I am minimising these as I am often parked a long way away. Pool car not always available.

Children, timing and things to carry also featured for others:

> I need to pick-up my daughter three nights a week from the inner city around 7.00 pm at night. I can't do that without a car and using a bus is not an option as it will add additional time to a late night for a relatively young child. The amount of luggage I need to carry is also prohibitive.

And when commuters were unable to find a way to make all of their requirements match with any of the modes, it could cause some distress:

> I have NO options. Even when the people visited they couldn't help me. I have no choice but to drive into the city and pay exorbitant parking costs – and this is only going to get worse as more and more people come into the city and car parks disappear. There are NO bus options from [my suburb] to the city centre – you have to change buses at least once. And that was assuming I didn't have children to take to school and daycare. The city is the WORST place for parents to be working. No consideration AT ALL has gone into working parents. It has been designed for middle aged men who are worried about their weight and can now buy fancy bikes to bike to work.

These extracts demonstrate that the requirements vary from person to person and from one specific trip requirement to another, and that the process of navigating them can be challenging. However, already from these examples, there are elements that can be seen to repeat – such as distance, children, load carrying and timing. Although these varied by situation and were fairly large in number, the full set of factors was remarkably consistent.

4.2.3 Analysis of qualitative themes

As discussed, a set of individual factors influencing the modal choice to cycle emerged thematically from qualitative analysis of the survey and interview data. A wide range of factors was identified, which varied from relatively minor issues, such as finding a pleasant route or the annoyance of headwinds, to major challenges that make cycling very difficult or practically unachievable, such as long distances or impassable obstacles such as a tunnel. While there are a large number of factors, which combine in highly complex ways, the number is not unlimited and after a time the same themes tend to emerge repeatedly. A list of these factors is shown in Table 5, grouped according to their nature – from the 'showstoppers' that make cycling very difficult or unappealing, through to the benefits and factors that favour cycling. 'Car stoppers' – factors that inhibit driving – are also included

for comparison. Indicators also show whether each factor tends to be influenced more by the nature of the person travelling or the specific nature of the trip being taken.

Table 5: Factors that may influence modal choice to cycle for transport purposes. (Items in bold are most prominent factors in each category. Person/Trip: Applies strongly = ● Applies a little = ○)

Category	Person	Trip	Factor
Showstoppers	○	●	**Long distances (10 km+)**
		●	**Travel time pressures**
	●	●	**Carrying passengers (esp. children)**
		●	**Load carrying**
		●	Restricted roads (e.g., motorways, tunnels)
	●	○	Disability/ injury/ health issues
	●		Not owning a bike
Challenging factors	●	●	**Road safety – confidence, accidents**
	○	●	**Darkness**
	●	●	**Lack of suitable/ safe cycling route**
		●	**Hills**
		●	**Bad weather – rain, cold, strong wind**
		●	(Head)winds
	○	●	**Appearance, managing body temperature/ sweat**
		●	**Lack of bike parking, shower and locker facilities**
		●	**Further travel – trip chaining, work-related travel**
	●	●	Physical effort, tiredness/ lack of energy/ enthusiasm
Differential/ inequitable factors	●		Affordability – travel costs, car ownership costs
	●	●	**Home location**
	●	○	Age
	●		Gender
	●	○	Disability/ injury/ poor health
Favourable external factors		●	**Separated cycleways and safe routes**
		●	Fine weather
		●	Secure bike parking
		●	Shower and locker facilities
Personal benefits	●	●	**Health/ exercise**
	●	●	**Cost savings**
		●	**Avoiding traffic congestion**
	●	●	Environmental impact
	●	●	Enjoyment of cycling
Car stoppers		●	**Lack of free/ affordable, nearby parking**
		●	**Traffic congestion**
	○	●	Driving stress and frustration
	●		Poverty (car ownership costs)
	●	○	Disability, age

4.3 Factors influencing modal choice to cycle

The remainder of this chapter will consider each group of the factors shown in Table 5 in more detail. The main issues relating to each factor will be discussed, illustrated by quotes from interviewees and respondents. Note that, if not directly stated, quotes attributed with a pseudonym are from the interviews, while unattributed quotes are from the travel planning survey (as typed by the respondent). Where compatible data were available from the Household Travel Survey and Census travel to work question, the impacts of these factors were extended more broadly to the population level.

4.3.1 'Showstoppers' – very strong functional/ instrumental factors

When identifying the themes that affect choosing to travel by bike over the alternative modes, it became clear that there were a number factors that could all but rule out the viability of the bike as an option. Although not necessarily wanting to begin with negative factors, these were the strongest themes that emerged.

Factors that can make cycling either impossible or very challenging include:

- Long distances (10 km+)
- Travel time pressures
- Carrying passengers, especially children
- Load carrying
- Restricted roads (e.g., motorways, tunnels)
- Disability/ injury/ health issues
- Not owning a bike

Any one of these factors could result in someone not cycling, or they could combine:

> Can you provide bikes that can carry 3 children (two under 3 years old) and go fast enough so that I can drop them at school and daycare and still get to work by 9am? No? Then biking is NOT an option for many!

It was perhaps due to such potential difficulties that seven respondents simply stated that they were not interested in cycling as an option at all, usually without a reason offered: "Nothing could make me cycle to work"; " No way I would be biking to work"; "Cycling is not my thing".

Of note, though, is that almost all of these showstoppers for the bike were relatively easily surmountable by a car – unless affected by the 'car stoppers' (primarily parking) that will be mentioned later. While the capability of the car may still be exceeded, such as too many passengers or too large a load, in those cases, there are few other ready alternatives. With these challenges to the bike, however, the car is always waiting in the wings as a ready alternative for most of these situations.

Long distances (10 km+)

Distance is, of course, a major determinant in any kind of transport related decision-making: any kind of travel is defined by the need to cover some kind of distance. Therefore, for cyclists, distance is a significant factor in determining the feasibility of cycling. This is especially because it is a self-propelled mode, meaning that distance relates to the time taken to reach a destination (which is usually longer than the car) *and* the amount of physical exertion required by the rider. Travel time and limits to physical exertion and endurance are obvious constraints to any bicycle trip and, therefore, distance often featured as the primary consideration in the feasibility of journeys made by cyclists.

Distance was one of the most frequently mentioned aspects in the cyclist interviews. For example:

> Sarah: I do get sick of [cycling] and I think one of the reasons why I'm getting sick of it is because I have to bike such a long way to work. […] Every time recently, I just think, "Oh, I wish I worked somewhere where, like, the bike ride was 20 minutes away." Even 25 minutes away, that would be fine.
> Q: So how far is it to work?
> Sarah: Oh, it's about 10 km. So it would be nice if it was like 5 to 8.

For participants in the travel planning survey, distance was a clear-cut factor influencing the decision to cycle, usually stated, sometimes as "not an option", without further explanation, suggesting that distance is an obvious constraint to cycling:

> I would love to cycle to work but the distance to work and the time it would take to cycle means that it is not an option for me.

Distance does not present a hard barrier, however. Obviously, longer distances relate to increased physical exertion and travel time on a bike, but the impact varies by person, cycling speed and conditions. One cyclist from the travel planning survey actually complained that their cycling distance had reduced, thereby also reducing the amount of exercise they achieved. Sports cyclist Dave noted that he used to happily commute a 40 km round trip by bike when he worked out of town, simply treating it as part of his training for sport cycling.

Distance also works as a multiplier for many other factors – a minor annoyance on a short trip may become a significant barrier on a longer trip. For example, a long ride in cold or wet weather is worse than a short one. The same applies to slopes or headwinds – each is worse the longer the distance they apply to. Body heat could also build up with distance, meaning the longer the ride, the more difficult it could be to ride in everyday clothing.

For those who cycled with children or carried children on their bike, children could limit their feasible travel distances. While a parent may be happy to cycle across town on their own, their range with children would be limited to a shorter range if the children were riding themselves, or even if carried in a cargo bike due to the extra effort required by the adult rider. Nikki and Chris were prepared to cycle 13 and 8 km to work on their own, however, they were limited to around a 5 km range, using the bikes primarily for local travel with their children.

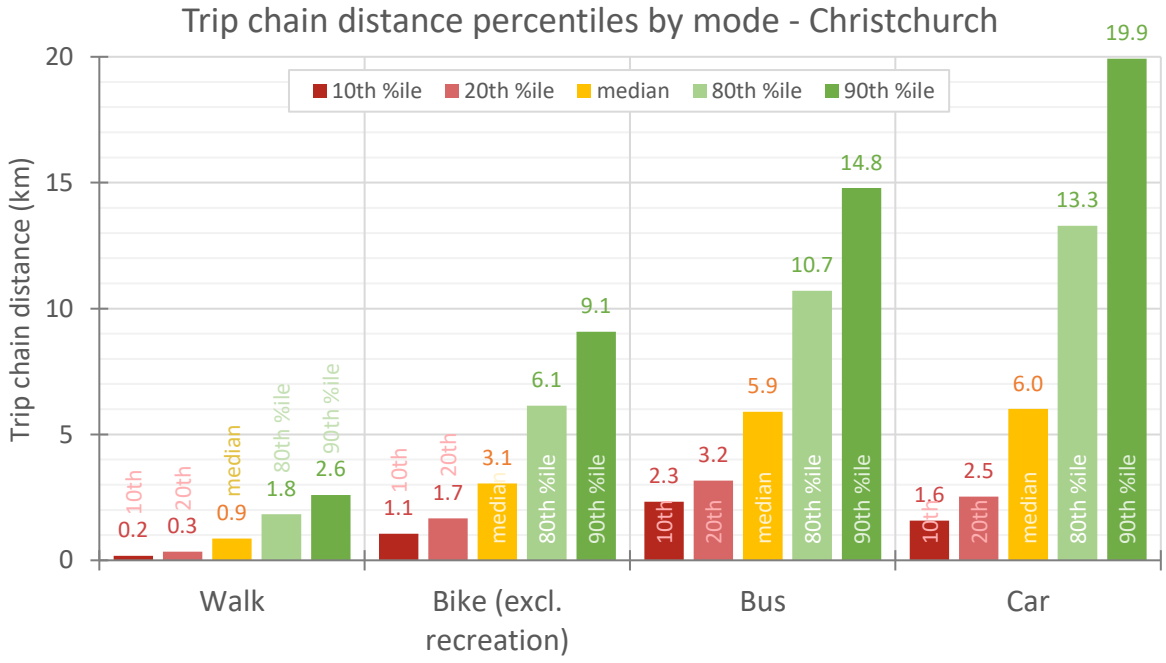

Figure 7: 10th, 20th, 50th (median), 80th and 90th percentiles of trip chain distance travelled by mode. Trip chain defined by less than 30 minutes between trip legs. Source: Household Travel Survey 2004-2014, Ministry of Transport, New Zealand.

These patterns, suggested in the comments from participants were also reflected in the Household Travel Survey data, which are well suited to exploring the ranges of distances travelled by the different

modes. Figure 7 shows percentiles of trip chain distances[15] travelled by various modes. The 10th and 20th percentiles show the length of the shortest 10% and 20% of trips respectively, while the 80th and 90th percentiles show the longest 20% and 10% of trips respectively, thus bracketing the typical distances travelled by mode. This shows that the outer limit for most cycling trips in Christchurch is about 9 km (90% of trips being less than 9.1 km) with a typical range within 6 km (80% less than 6.1 km) and a median of 3.1 km. The median distance for car trips is 6.0, suggesting that 50% of car trips are beyond the range of typical cycling trips.[16]

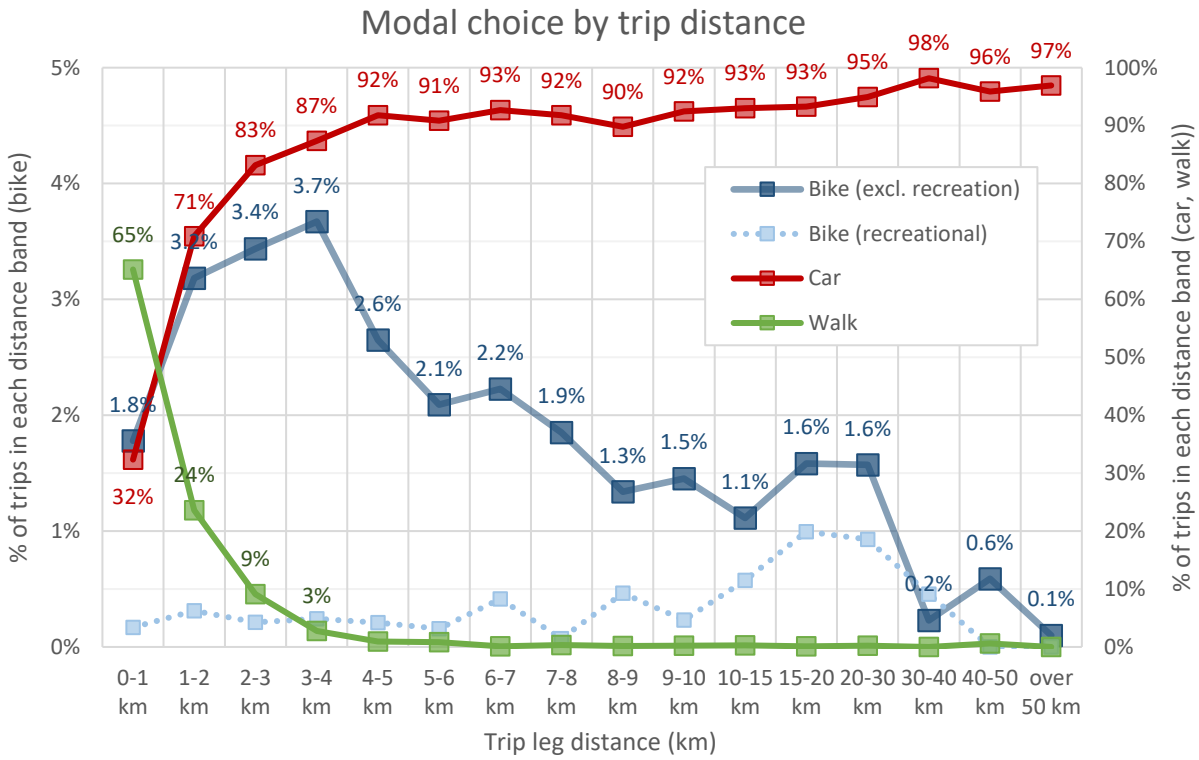

Figure 8: Mode share of trips by distance within distance bands. (Note that bike categories are plotted against the left hand axis, while car and walking use the right.) Source: Household Travel Survey 2004-2014, Ministry of Transport, New Zealand.

[15] When considering distance travelled, it is important to think in terms of trip 'chains' rather than simply trip legs (Smith et al., 2011, p. 14). This means that dropping a child off at school and then stopping for some milk on the way to work counts as one trip *chain*, rather than three separate trip legs between the brief stops. Consistent with the Household Travel Survey data, I combined any trip legs separated by less than 30 minutes as being in one trip chain.

[16] It should be noted that cycling data exclude trips classified as Recreational in the Household Travel Survey as this appears to include cycle training rides for sport or exercise alone. Of the 64 such trip chains recorded, the 80th and 90th percentiles are significantly longer at 10.4 and 19.1 km respectively.

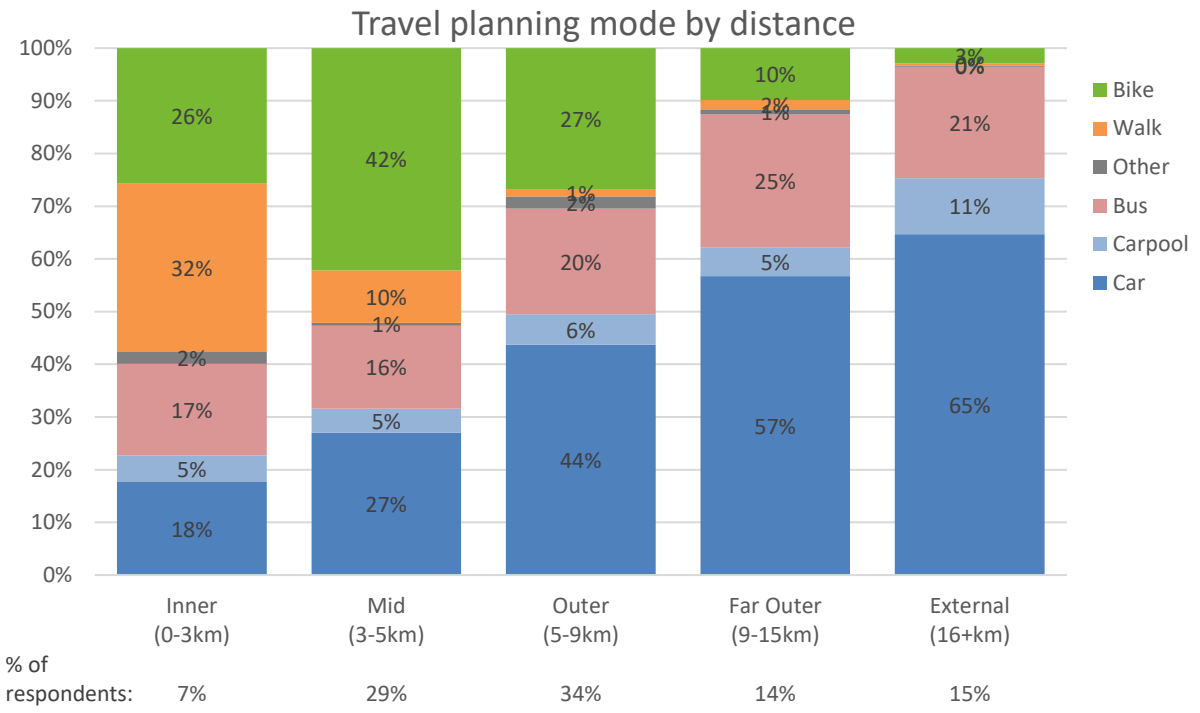

Figure 9: Modal choice by distance from office. Source: Travel planning survey.[17]

In Figure 8, examines cycling distances in more detail. It shows that cycling has its highest share of trips for trips between 1 and 4 km and drops off steadily thereafter (with some random variation due to the decreasing sample size in each band). For shorter trips below 1 km, walking is more likely to be favoured. Of interest is a small increase in cycling again in the 15-20 km and 20-30 km bands. This corresponds to a similar peak in recreational cycling over the same distances, suggesting that some sport cyclists may make trips for transport, especially commuting to work, as a form of training as well, as with the example of Dave mentioned earlier.

These results suggest that cycling is most popular for trips up to around 6 km, with few venturing beyond 10 km. This pattern was also reflected in the travel planning survey, where cycling was much more popular within this range (Figure 9). These numbers matched my experience in the programme that non-car options were more likely to 'sell' themselves within about 5 km of the central city.

Figure 10, however, shows the breakdown of trips by any mode – as a percentage of trips and as a percentage of distance travelled. This shows that around one third of trips (33%) are within a comfortable cycling range of only 3 km, while over half (56%) are within the still common 6 km range.

[17] Distance calculated from suburb names as the distance from a single point within the central city. Source: Google Maps. (Map data ©2020 Google.)

Given that only 2.7% of trips are in fact made by bike, however, this suggests that distance alone must be far from the only factor influencing cycling as a mode of transport. It is also worth noting that although trips under 6 km make up 56% of trips, these account for only 15% of the distance travelled, suggesting that cycling is likely to have little impact on the more carbon intensive longer trips.

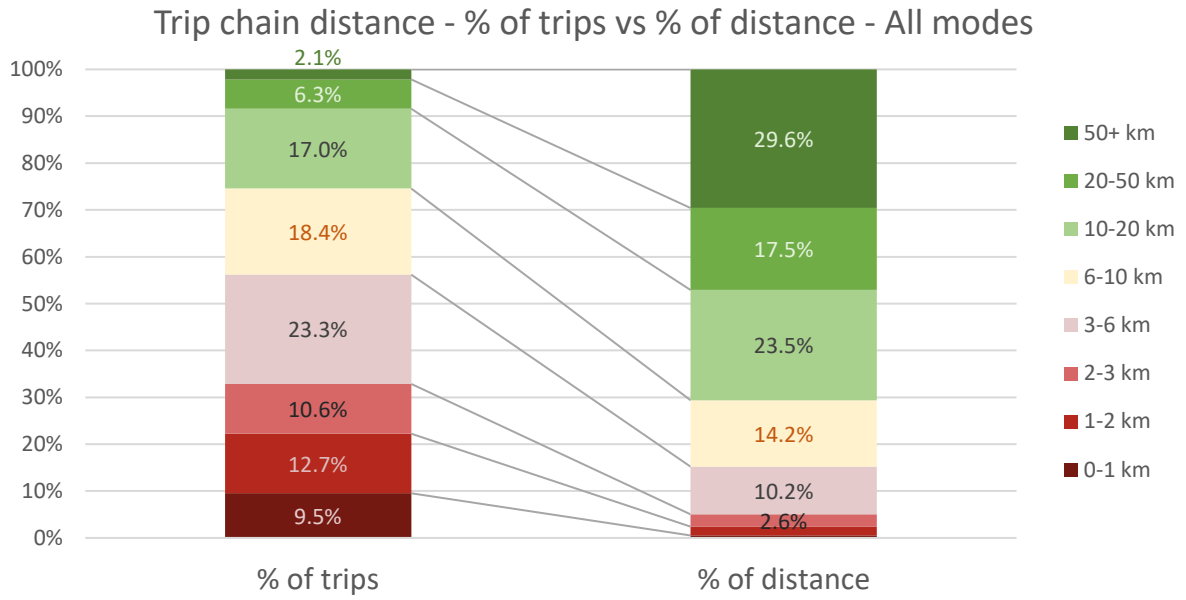

Figure 10: Percentage of trips by distance band compared to percentage of distance travelled in Christchurch. Source: Household Travel Survey 2004-2014, Ministry of Transport, New Zealand.

By comparison to the distance limitations that the bike faces, it is important to note that the car is well suited to covering any distance (as long as a car park is available at the destination) and it appears to be the mode of choice for longer distances (Figure 8 and Figure 9), with the bus as the preferred non-car alternative for the longer distances (Figure 9).

Travel time pressures

Distance is of course closely related to travel time, however distance and time appear to be experienced and evaluated differently by those engaged in self-propelled travel compared to vehicular travellers. In the travel planning commuter survey, those discussing cycling generally referred to "*distance*" as a constraining factor in 'longer' trips, while those using other modes from distant locations referred to that 'length' in terms of "*time*". In other words, a 'long' trip is typically experienced in terms of the time that passes by a motorist, but as a distance to be overcome by cyclists. This distinction is likely due to the physical exertion required to cover distances required by cycling, making it the most notable, immediate constraint, while in a vehicle exertion is minimal and the passage of time becomes the most prominent immediate 'cost' experienced.

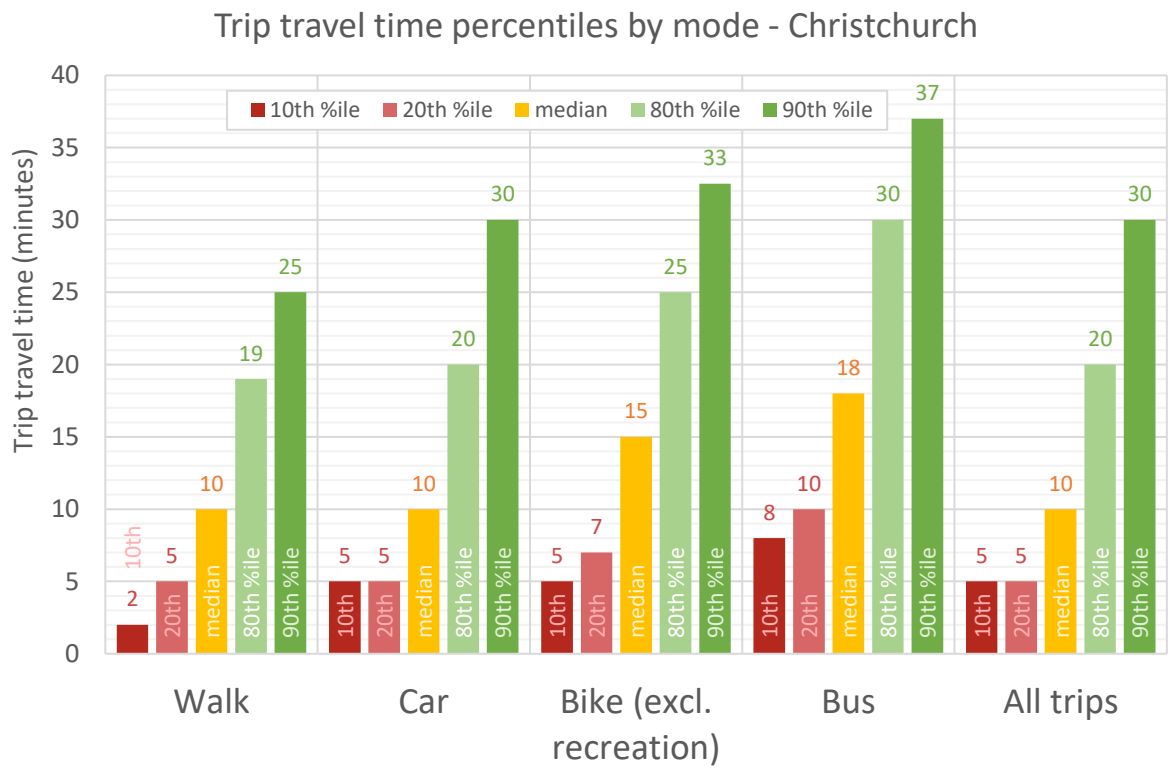

Figure 11: 10th, 20th, 50th (median), 80th and 90th percentiles of trip travel times by mode. Source: Household Travel Survey 2004-2014, Ministry of Transport, New Zealand.

Figure 11 shows travel time percentiles by mode. 90% of 'All trips' by any mode (final set of columns) are within 30 minutes and 80% within 20 minutes, suggesting an upper range of 20-30 minutes for typical trips in Christchurch. These time percentiles correspond to the equivalent distance percentiles in Figure 7 for walking and cycling. Taking the distances from Figure 7 and dividing by the equivalent time in Figure 11 can give an indication of the average speeds involved: 14 km/h for cycling and 5 km/h for walking, which are typical average speeds for each (allowing for stopping at lights for bikes). This suggests that the speed of the mode – its ability to cover a distance within a certain amount of time – and travel time expectations may play an important role in modal choice: i.e., a mode may not be selected if the trip cannot be completed with a comfortable time window of up to approximately 20-30 minutes. This apparent time limit for all modes may be influenced by the typical travel times for a car, given that (as seen in Chapter 1) most car trips in Christchurch can be completed within 20-30 minutes. This pattern of travel times suggests that time *minimisation* is not necessarily the goal of everyday travellers, but, rather, that travel fit within a comfortable time *window*.

This upper bound to how long people are willing, or have available, to spend travelling can have a further impact if time is squeezed by other pressures, such as transporting children to and from school.

In such cases, even if the distance is within a comfortable cycling range, the time available may require the higher speed of the car, due to the inflexible nature of school times:

> I own two bikes and cycle frequently in the weekend however I do not cycle to work as I need to drop off my child at daycare first which – I do not have time in the morning to then cycle from outer suburbs.

Some also had to fit a specific number of part time hours between school pick-up times, increasing the time squeeze on travel time.

It should be noted, though, that in heavy traffic, the bike could also be faster and more reliable in terms of time than the car, as will be highlighted later.

Carrying passengers (especially children)

The third most frequently mentioned factor in the comments impacting on commuting decisions, after distance/ time and car parking was the need to transport children and to allow for family commitments. As with other examples of travel additional to the direct commute to work, many of these were presented as the car being the only option available:

> I have children to drop at preschool, so I have no choice but to drive

> Need to pick up kids three days a week so need car to get to school.

> Why is this never factored in? Children! We have children to pick up from school.

The task of transporting children often involved (sometimes intricate) coordination with a partner or other family members sharing the use of a car: "my ability to bike is also dependent on whether my husband can drop the kids at school". Transporting children to after school activities also added to the perceived need for a car: "…drop off and pick up and ferrying to various activities". Other parents also mentioned a need to get to their children quickly if required during the day for some reason, such as sickness or an emergency. This also applied to wider family for people caring for older or sick relatives. Cycling was often ruled out as an option in the face of family obligations, without explanation ("Have to drop children off at school so biking is not an option").

Table 6 shows a breakdown of household trips by mode, from the Household Travel Survey, based on whether they involved adult only, adult and child or a child travelling on their own, where a child is defined as 17 years old or younger. These results show that 20% of trips made by households include children in some way (11.9% children with adults plus 8.1% children alone). Children on their

own cycle 7.6% of the time relative to other modes,[18] but only 0.4% of trips with an adult *and* a child take place on a bike. The vast majority of child-with-adult trips are made by car (87.6%) with the rest mostly on foot (11.0%). These numbers demonstrate that the reluctance to transport or accompany children on a bike described in the travel planning is near universal. Some of the interviewees, however, who were keen cyclists, would fall within this tiny 0.4% group, and their experiences of travelling by bike with children are described further in the following chapter.

Table 6: Share of trips for adults and children – by household based on mix of adults and children (up to 17 years old) as a percentage of all trips by each group (column). Source: Household Travel Survey 2004-2014, Ministry of Transport, New Zealand.

Mode	Adult(s) only	Adult(s) & Child(ren)	Child(ren) only	ALL AGES
Car	73.0%	87.6%	29.9%	71.3%
Walk	19.5%	11.0%	48.2%	20.8%
Bike	3.3%	**0.4%**	**7.6%**	3.3%
Bus	3.2%	0.8%	13.4%	3.8%
Other	1.0%	0.3%	0.9%	0.9%
TOTAL	100.0%	100.0%	100.0%	100.0%
ALL MODES:	**80.0%**	**11.9%**	**8.1%**	**100.0%**

Load carrying

Carrying large or heavy items can also be very difficult or impossible by bike. Although bikes can be configured with pannier bags and baskets for carrying some relatively small items, their load carrying capability is low. A bike can be configured to carry one or two (pannier) bags and small items in a basket, however, most cyclists in Christchurch are restricted to what they can fit in a backpack (see images, next chapter). So, bikes are restricted to light loads.

These practical limits are a strong, functional obstacle to the bike that is difficult to overcome:

> Robert: I just use… the cars are basically useful for carrying heavy loads, something like that.
>
> Emma: I use [my car] three or four times a week. […] And especially, like, yeah, if I'm going longer distances or carrying even bigger stuff or whatever.

[18] A low rate which has decreased markedly, even in the last few decades. Cycling to primary and secondary school dropped from 12% and 19% respectively in 1990 to 2% and 3% by 2014 (Ministry of Transport, 2015a).

Only four of the travel survey respondents mentioned loads as a limiting factor and reason to take the car, perhaps because the respondents were primarily office workers, with little equipment to carry, or because it was considered obvious and not worthy of mention.

However, even relatively small everyday loads can be a challenge for a bike:

> The amount of luggage I need to carry is also prohibitive. Full gym gear, and towel etc., briefcase, […] laptop […], work clothes for the day are also carried in each morning.

> Both [schoolchildren] can bike but […] sports and academic equipment mean it would be unsafe for them to bike on this route.

Trips can be planned, but unexpected loads could also be a challenge – meaning that people also make allowances for *possible* loads. Emma noted in the interviews that bike trips required more planning about what would be taken where, and that she would take the car when less certain about what she would be carrying where. Sarah echoed this sentiment, noting that carrying things was much easier in a car:

> Sarah: Oh my God! It's… It's a pain. Like in a car, you can just get in the car, that's the convenience of a car, you can just like pick up the car keys and go. I've got to think about what I've got to pack, how to pack it, which bag I should be using […]. So, yeah, there's a whole lot of faffing around with deciding how to carry what I need to carry to where I'm going. Um… So that's a bit annoying. Whereas in a car you just jump in and chuck it in the back seat.

Cargo bikes and trailers are possible for carrying larger loads but these are rare in Christchurch and more commonly used for transporting children rather than loads. Will, one of the interviewees, noted that while their cargo bike was useful for loads, that they would not keep it once it was no longer suitable for the children. Loads are also more vulnerable on any type of bike – from exposure to the elements and theft: items may get wet in the rain and can be more prone to vibration. Will mentioned that even with a cargo bike "it is a bit bouncy in there" for more delicate items. Items carried are also less secure if the bike is left unattended. Lauren reported feeling "like a bag lady" having to carry all of her bags through a shopping mall because they could not be left with her bike.

Katie was "very tenacious when it comes to weight on bikes", even carrying two 10 kg bags of potatoes or 20 kg bags of old coffee grounds at times, yet even she found the limits of a bike when gifted with a large, fluffy electric blanket:

> Katie: […] she gave me a queen-size electric blanket, but it was this great big thing, because it was all fluffy, and I went, that'd be perfect on the spare bed, yes, I'll take it. And she said, you can't take that on the bike, and I said, "Wanna watch me?!" [Laughs] And I did. I stretchied

> it on to the bike and actually, it didn't actually work. It was actually too big. I *couldn't* get it so that it would sit.
> Q: You had to admit defeat.
> Katie: I did. I said to her, it didn't work! [Laughs] I dropped it off at my mother's around the corner and I picked it up in the car. It was… but I will give it a damned good try.

So, load carrying can quite easily make the bike an impossible or highly impractical option and can be a key 'showstopper' for the bike in daily transport.

Restricted roads (e.g., motorways, tunnels)

This is a minor issue in Christchurch, yet can be a significant obstacle when it occurs. The issue is restricted mainly to the port town of Lyttelton is most easily accessed through a road tunnel which cyclists are not allowed to enter, meaning that they either have to take their bike through in a car or on a bus or ride much further over the hill, thereby severely limiting access by bike. Bikes are also not allowed on motorways, however, there are nearly always non-motorway alternatives available, although they may not be as direct. Although these situations are relatively rare, they do rule out cycling as an option. These are not an issue for the car though, by comparison.

Disability/ injury/ health issues

As a self-propelled mode of transport requiring a reasonably good level of agility and strength, the ability to ride a bike is clearly limited to those with the physical wherewithal to cycle. A number of respondents to the travel planning survey noted that they were less inclined to cycle due to injuries – such as to knees or back, "health problems", recovering from an operation or due to chronic repetitive strain injury causing wrist and shoulder problems. One also linked health and weather: "I only bike in warm weather because of health reasons". Others also mentioned needing a car due to disability and having difficulty with the lack of nearby car parking and the amount of walking required, suggesting that cycling would also not be possible for them. Pregnancy also led to one person favouring the car.

For people suffering from health or mobility issues, cycling is therefore not a reasonable option for most. As a result this becomes an equitability issue that will be discussed in a later section. Health and mobility can also affect ability to drive a car, but likely at a much higher threshold than a bike.

Not owning a bike

Obviously, not owning a bike would be a barrier to cycling. In 2009-2013, 48% of households in New Zealand had a working bike available – 69% for households with children, falling to 40% for couples

and 33% for single person households (Ministry of Transport, 2013). 13 survey respondents mentioned not owning a bike. Although a secondhand bike would be affordable to most, there may also be issues such as lack of storage space at home, inability to afford one, maintenance costs and inability to ride a bike.

4.3.2 Challenging factors

In addition to the strongly functional, 'showstopping' factors above, there are other factors which may still make cycling challenging or uncomfortable. These factors may include:

- Road safety – confidence, accidents
- Darkness
- Lack of suitable/ safe cycling route
- Hills
- (Head)winds
- Bad weather – rain, cold, strong wind
- Getting hot/ sweaty
- Lack of bike parking, shower and locker facilities
- Clothing and appearance
- Further travel – trip chaining, work-related travel
- Physical effort, tiredness/ lack of energy/ enthusiasm

While these factors are usually surmountable and often little more than minor annoyances, they take on a greater importance in light of modal choice. Even if simple to overcome, they may become more significant *relative to the car*, especially given that most of these factors are not such significant issues in a car.

Road safety – confidence, accidents

Perceptions of a lack of safety in traffic is well documented as being a potential barrier among 'interested but concerned' cyclists, and this was also evident in these data. In the travel planning survey, safety was often mentioned as a barrier to cycling. Of these, most came from non-cyclists and simply stated this as a fact without further explanation, which implies that the perceived danger

of cycling is assumed to be self-evident: "Will you look after my son for the rest of his life if I get killed or maimed off my bike?".

Quite a number of respondents, however, reported having accidents while cycling:

> I don't feel safe riding on a bike as I had 2 near accidents, as motorists in Christchurch simply don't care about cyclists ...and I am not prepared to put my live at risk even making sure I have all the lights and hi viz.
>
> I fell off my bike on day one – haven't been able to ride since due to injuring arm
>
> I tried biking but got hit by a car and now too scared
>
> No longer ride in Christchurch during working times after serious accident a few years ago.
>
> 2 bike accidents including broken pelvis

Others based their perceptions on their own observations of cycling on the roads ("have seen too many near misses on the road", "I observe many close calls") or from hearing "horror stories" from others, including cyclists. In some cases, family members discouraged others in the family from cycling, on safety grounds: "I used to cycle but my wife won't let me anymore after I was knocked off my bike 18 months ago"; "No incentive would let me allow any of my family on a bike in this city".

Often safety or vulnerability was described as something *felt*: "Just don't feel safe on a bike"; "I used to ride, but find it a bit scary now". Which had some thinking that 'confidence' is required to cycle, especially in busy traffic: "I wouldn't have the confidence for riding in the city at all".

Some named specific roads or locations that they considered unsafe and one person mentioned finding high-speed rural roads particularly dangerous. In post-quake Christchurch the many road reconstruction projects and construction sites beside roads also posed an obstacle for some. Darkness could also play a role in safety perceptions, especially in winter (see below).

By contrast to the bike, no one mentioned concerns about road safety with respect to cars. Given that this is not a non-existent risk, this suggests that, as the dominant transport mode, the safety of the car is the benchmark by which the safety of other modes is measured.

Darkness

Although darkness was mentioned less often than the weather as a barrier to cycling, by both travel planning participants and interviewees, it also appears to have a similar impact on deciding whether

or not to cycle. Several of the travel planning participants mentioned darkness – particularly in winter when it would be dark at the end of the working day – as discouraging cycling to work.

While the regular cyclists interviewed were usually willing to tolerate and simply prepare for inclement weather, darkness was seen by a number as an impediment leading to alternative modal choices. A sense of being less safe on the roads at night was the main factor:

> Karen: I don't really use bikes at night. That's one thing I don't do. And I never have either. […] Just because of visibility. […] Even though, like in the UK I had really good lights and stuff like that and it was really highly viz, I still wouldn't do it really.

> Miles: I made a decision that in July and August I was going to mostly use the car rather than bike and that's partly because it's cold and unpleasant but it was mostly because of how dark it is and […] it's a time when there's a *lot* of cars on the road. […] I actually found that quite unnerving.

In the travel planning several people mentioned being concerned about walking in the dark – either to bus stops or parked cars – due to concerns about personal safety from crime, but this was not mentioned with respect to cycling. In the interviews, however, three of the women specifically mentioned concerns about their personal safety at night, especially down dark cycle paths or parks. The perception of safety was linked to speed by some, increasing their ability to get away from trouble, and therefore feeling safer than walking. For example, Claire was reasonably comfortable riding through parks because they are well-lit, and even rode through a cemetery at night sometimes, but noted that she would ride through places that she wouldn't walk through on her own, due to the difference in speed.

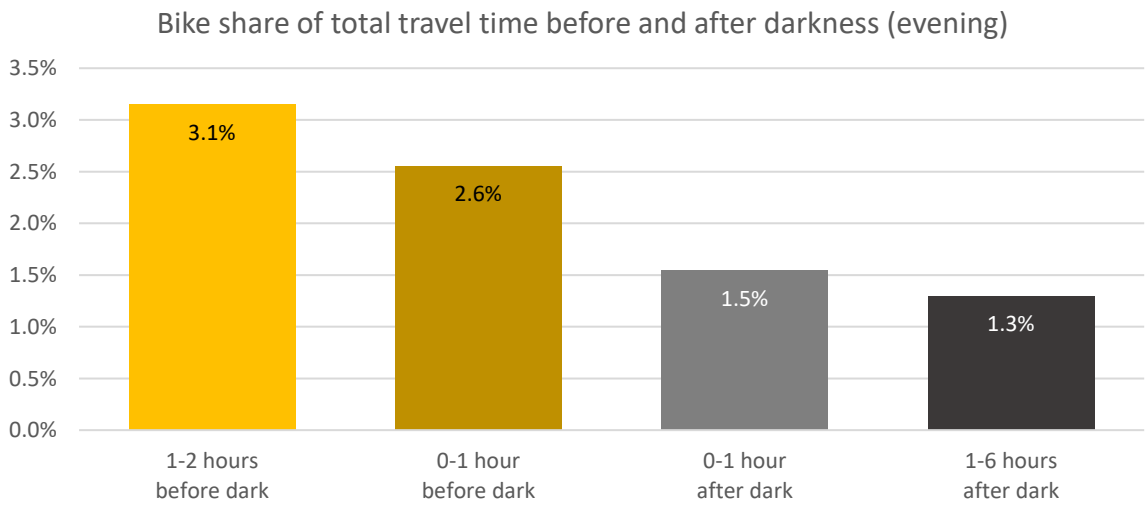

Figure 12: Biking as a share of total travel time relative to time before and after darkness. Source: Household Travel Survey 2004-2014, Ministry of Transport, New Zealand.

The impact of darkness on cycling can be calculated by linking sunset times to the Household Travel Survey travel times (Figure 12).[19] This shows a reduction of just over 50% in the modal share of cycling during the hours of darkness. Although there is some small reduction in the hour before darkness, likely due to the anticipation of darkness and gradual darkening over that period, once it is already dark there is little change in cycling participation. This suggests that the darkness is the main issue, rather than some other influence, such as the time of day or change in travel purpose.

Figure 13 shows the gender split of cyclists on the basis of darkness. This reveals only a small drop in the proportion of women cycling after dark – a reduction of around one quarter compared to daylight hours. This suggests that most of the decrease in cycling after dark evident in Figure 12 is gender neutral and possibly driven by traffic safety concerns of all cyclists, rather than concerns for personal safety from crime.

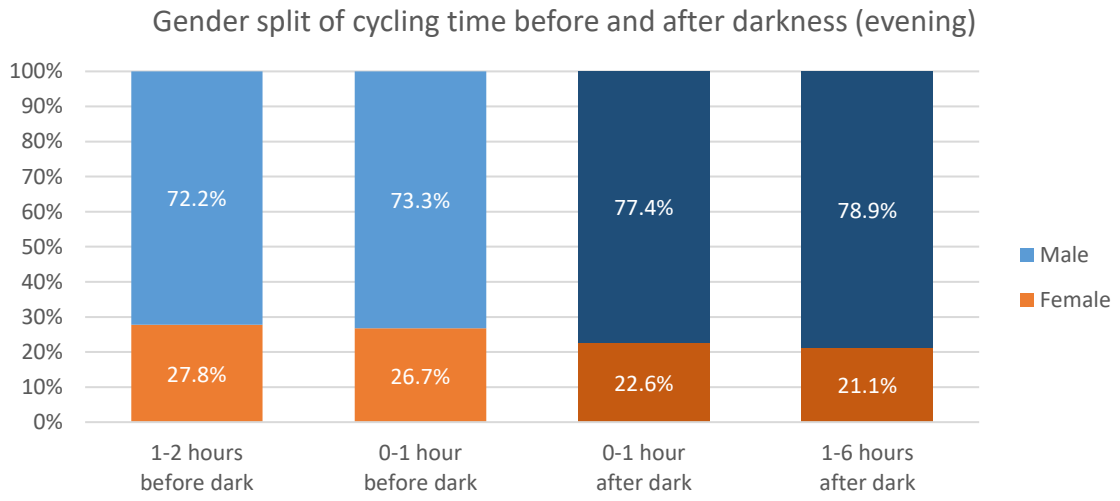

Figure 13: Gender split of time spent cycling relative to time before and after darkness. Source: Household Travel Survey 2004-2014, Ministry of Transport, New Zealand.

[19] Participation rates are calculated as the share of *time* spent travelling within each time band as individual trips were split into each band on the basis of time spent in that band. So, if a 45 minute trip was completed 5 minutes after dark, 40 minutes would be counted as before dark and 5 minutes after dark.

Morning hours of darkness were not considered because, like in Figure 16 (p. 121), this would mainly affect only commuters on cold winter mornings and typically only for relatively short periods before the sky lightened.

The legal hours of darkness in New Zealand for driving purposes end half an hour before sunrise in the morning and begin again half an hour after sunset in the evening. In Christchurch these times of legal daylight are: longest day, 5:14 am to 9:40 pm (16.5 hours); shortest day, 7:33 am to 5:29 pm (10 hours). Source: timeanddate.com.

Concerning the car, by comparison, the safety of driving a car on the road at night was not mentioned at all. However, the car did face the disadvantage at night of people feeling exposed if having to walk to a parked car in the dark. As mentioned, cyclists reported feeling less exposed to social danger when cycling at night compared walking, due to their speed – a small 'win' to the bike in the hours of darkness.

Lack of suitable/ safe cycling route

The perceived safety of cycling is not uniform, however, because the sense of safety varies depending upon whether an acceptably safe route could be found. This typically related to being able to avoid busy roads with a lot of vehicle traffic and little separated space for bikes. As reported widely in the mainstream literature, this is a significant barrier for many who would otherwise like to cycle:

> I would prefer to bike or walk all of the time [...] but am not biking, due to the route not currently being safe.

Many supported the idea of separated cycling infrastructure: "Really enjoy the bike pathways in town where I feel safe"; "I won't cycle on busy roads, so the new cycle routes are a very good motivator". However, in some cases, a single busy road could provide an insurmountable obstacle: "Marshland Road is a very high traffic road with minimal bike separation"; "the main road in has no bike lanes – and is dangerous for cyclists currently". This suggests that a full network of routes is required to meet the needs of all travellers: "The bike lanes in the city are great, but it's actually outside the CBD that they are needed most".

As most of the danger on the less safe routes was from cars and other vehicles, route finding for a car would be much less of a challenge, as these routes were designed specifically to accommodate cars.

Hills

Although, as has been mentioned, most of Christchurch is completely flat and therefore very well suited to cycling, the hills at the southern extent of the city are relatively sleep. A bike rider contemplating the hills in Christchurch will go from a 0% gradient to an immediate 7-9% gradient, which is quite consistently steep with few level breaks. Such a gradient is steep for a cyclist and is

only reasonably possible (without getting off to walk) for bikes with low gearing. Most hill suburbs extend uphill in this way for between 1 and 3 km.[20]

Figure 14: The hill suburbs of Christchurch. Source: Google Earth. (Imagery ©2020 Maxar Technologies, CNES/ Airbus © Google.)[21]

A small number of survey respondents mentioned hills as a barrier to their cycling: "Moved to new house uphill, stopped biking after that"; "Living at the top of [road name], cycling isn't practical for me". From the Census travel to work data, there is no discernible change in cycling rates in the hill suburbs at the southern end of the city that could be attributed to terrain alone. Any changes due to terrain also match patterns in other flat areas of the city based on distance from the city centre alone. Many of the houses on the hills are relatively close to the flat, however, so this may not present a significant barrier for many, and those who are also sport cyclists may enjoy the additional exercise of a steep gradient, especially given they will be able to shower and change clothes upon arriving home. An electric bike is also an option for hill dwellers:

> Jane: I bought the [electric] bike because I live on a hill and I was getting old and tired and, um, it was getting harder to get up the hill, and then I got sore knees (laughs) and it got even harder to get up the hill.

For those living 'over the hill' in the Lyttelton Harbour basin, however, the steep terrain and busy, narrow road could be considered more of a 'showstopper': "Journey altitude 400 vertical meters climb and descent on a road dangerous to all forms of traffic, most notably bikes"; "Impossible to bike as open road steep hill to traverse".

[20] Source: Google Maps. (Map data ©2020 Google.)

[21] Complies with Google's non-commercial, fair use with attribution guidelines for Google Earth: https://www.google.com/permissions/geoguidelines/

For cars, hills are not a significant concern, as a car simply needs only to change down a gear or two and the extra work is borne completely by the engine, so is barely noticed by the occupants. So hills affect bikes much more significantly than cars.

Bad weather – rain, cold, strong wind

The largest difference in comment frequency between cyclists and car-only commuters in the travel planning freeform comments related to comments about the weather by cyclists, especially cold or wet weather. Many expressed this in terms of seasonal preference, either for favouring cycling in summer, or avoiding the colder, wetter weather of winter, as well as the increased hours of darkness. While car occupants may be almost completely sheltered from the weather (apart from walking to the car), cyclists are particularly exposed to the elements.

As a result, cold and/or wet weather were mentioned most frequently as discouraging cycling for many: "I enjoy biking to work however, it can be difficult to bike to work in extremely cold and wet"; "Biking in the rain isn't fun". The result often being to avoid cycling in inclement weather, particularly if less confident or more vulnerable.

For some, however, the lack of central city parking meant that they would endure bad weather anyway: "Because of the parking problem in CBD I now take the bike even if it's raining". Others, though, were adaptable and called on a range of alternatives when the weather was unpleasant – usually the bus, including taking the bike on the bus, but also driving a car or asking others to take them by car.

Weather was most commonly mentioned in a seasonal sense of favouring summer cycling – 'fair-weather cycling' – over winter. This appears to be due to a combination of colder weather, increased likelihood of rain and darkness at commuting times making cycling unpleasant and unappealing during winter:

> I have also biked in to work during the spring/summer months, however it is currently too cold and dark (and therefore dangerous) to continue this over winter.

The regular cyclists in the interviews also regularly considered the weather as a decision factor – sometimes in terms of modal choice, but more often in terms of how to prepare for their journey by bike, which is discussed further in the following chapter.

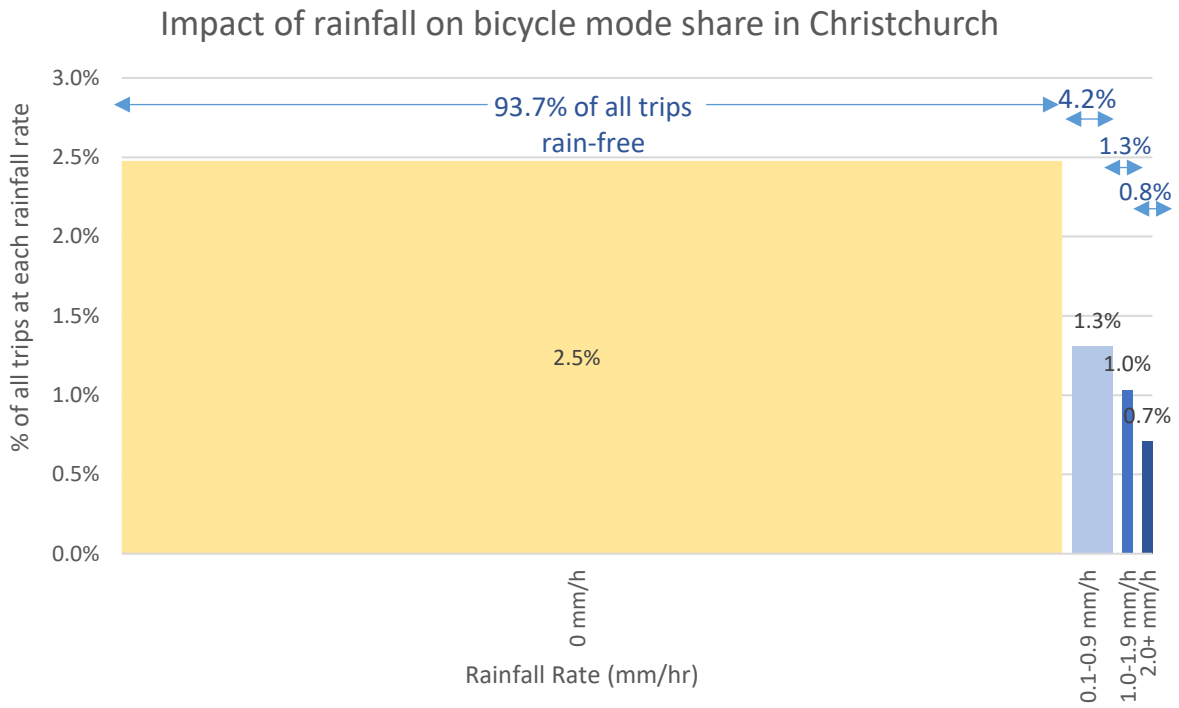

Figure 15: Impact of rainfall on non-recreational bicycle trip mode share, with width of bars representing the percentage of all trips by all modes made under each rainfall rate band. ***Source: Household Travel Survey 2004-2014, Ministry of Transport, New Zealand. Rainfall data: National Institute for Weather and Atmospheric Research (NIWA), hourly observations in Riccarton, Christchurch, 2004-2014.***

Figure 15 estimates the effect of rainfall on cycling trips in Christchurch. It uses the timestamp from the Household Travel Survey to match cycling trips to hourly rainfall data from NIWA in the centre of Christchurch. This finer granularity suggests that although there are, on average, 11 days per month with some rainfall in Christchurch[22], the chances of that rain actually falling at the time of making a trip is relatively low. The width of the bars in Figure 15 indicate how often rain falls when people are actually travelling (by any mode). It shows that only around 1 in 20 trips (6.3%) is made while it is actually raining, suggesting that it is relatively easy to avoid wet weather. When it does rain, however, the cycling rate does drop significantly – by about half – suggesting that cyclists do indeed take measures to avoid wet weather.

Numbers such as these can be used on the one hand to suggest that exposure to rain is relatively rare, certainly less than the incidence of days with rain would suggest. Even on a rainy day, a cyclist is able to observe the weather and weather forecasts and ride around rain showers. On the other

[22] Source: National Institute for Weather and Atmospheric Research (NIWA), daily observations in Riccarton, Christchurch, 2003-2017.

hand, however, this narrative does not allow for the perceived *possibility* of rain nor the consequences of getting wet. Rain showers can be very localised and unpredictable, therefore, even with the best weather forecasting, a cyclist may still be caught out in the rain and depending on the individual, their destination, their attire, the quality of their rainwear and what they are carrying, the impacts of getting wet may vary. Getting wet while wearing casual clothing may be a minor annoyance, however if wearing a suit and dress shoes while carrying important papers and a laptop, the consequences could be less trivial, increasing the impetus to avoid the possibility.

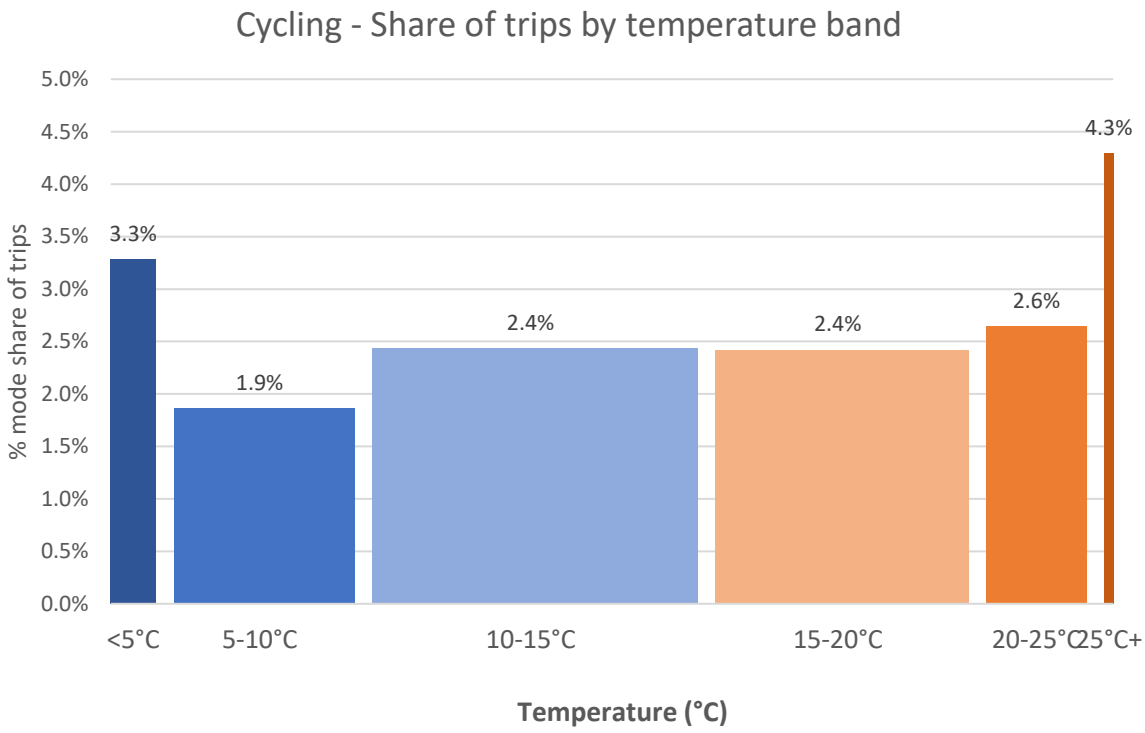

Figure 16: Impact of hourly air temperature on non-recreational bicycle trip mode share, with width of bars representing the percentage of all trips by all modes made under each temperature band.
Source: Household Travel Survey 2004-2014, Ministry of Transport, New Zealand. Temperature data: National Institute for Weather and Atmospheric Research (NIWA), hourly observations in Riccarton, Christchurch, 2004-2014.

Compared to rainfall, variation in temperature does not appear to have the same impact on cycling rates. Figure 16 shows how the share of all trips made by bike varies by hourly temperature, with width indicating the proportion of all trips occurring in each temperature band (in a similar way to Figure 15 for rainfall bands). Between 5 and 25 °C the cycling rate varies relatively little, perhaps because cycling warms the rider and requires similar clothing to what would be required anyway, other than perhaps the addition of a pair of gloves. The higher rate of cycling below 5 °C is likely to be a result of this temperature range occurring only early on frosty mornings at a time when people are commuting to work, which has a higher participation rate than other trip purposes. The higher

rate in the (unfortunately rare) incidence of temperatures over 25 °C in Christchurch, may be a result of recreational riding during nice weather on weekends.

(Head)winds

The wind, especially when it is a headwind, is worthy of its own brief section, as a particularly frustrating weather-related issue for cyclists which car drivers rarely notice. Bikes are a very efficient means of moving, essentially limited only by air resistance, but this also makes them very sensitive to headwinds. This slows a rider in a similar way to a (mild) slope, and therefore the time taken to reach a destination. Unlike a slope, however, wind is variable and more unpredictable. Table 7 shows how sensitive cycling speed is to moderate to strong headwinds, halving the speed in a moderate breeze and reducing to walking pace in a fresh breeze.

Table 7: Calculated impact of various wind speeds on cycling speed of a typical 70 kg casual rider on a 9 kg bike, delivering 100 watts of pedalling power. Source: http://bikecalculator.com.

	Headwind wind speed				
Parameter	**0 km/h**	**5 km/h**	**10 km/h**	**20 km/h**	**40 km/h**
Cycling speed (km/h)	20.1 km/h	17.8 km/h	15.6 km/h	11.9 km/h	6.7 km/h
Minutes per km	3m00s	3m23s	3m50s	5m03s	8m58s

The perceived impact can be higher as a headwind can detract from the pleasure of riding and cause a degree of frustration that was evident in the interviewees' descriptions:

> Sarah: Like, the northeaster is a killer, just… It *really* gets me down.[…] I feel like I have way more headwinds than tail winds.

> Judy: Headwinds. Horrible. The worst, the worst part of it really.

Some interviewees reported taking the car rather than the bike if winds were forecast.

But, while most found the wind annoying, they also grudgingly accepted it as "a fact of life" [Miles]. In rare cases, some had tales of strong headwinds adding 20-30 minutes to a trip, potentially making them late, but in most cases it "might add five minutes to the kind of time it takes but it's not too bad" [Will]. Headwinds were much less of an issue for electric bikes, but for those with cargo bikes or trailers, however, the wind could be a more significant factor, with Karen reporting having to get off and walk in particularly strong winds.

The upside of a headwind, of course, is the tailwind when heading in the opposite direction, but, unfortunately, by their nature, they do not last as long as headwinds:

> Sarah: It was a nice tailwind all the way home. It was lovely. I love tailwinds. I hardly ever get them in Christchurch.

Appearance, managing body temperature/ sweat

Riding, especially longer distances or up hills, can result in becoming hot and sweaty, which may not be appropriate for certain attire and settings. Although Figure 16 shows that high temperatures are rarely an issue in Christchurch, the act of riding can generate enough body heat to cause sweating in any weather. This was only mentioned once in the travel planning surveys, in terms of getting hot on a bike: "Got sick of pedalling like crazy in rain, norwesters and southerlies and arriving at work sweating like a pig."

Of the regular cyclists interviewed, some also mentioned issues with getting too hot on occasion, in ways that were unsuitable for the setting, but this was a relatively rare occurrence for them:

> Jane: If you arrive at a meeting all sweaty and hot it feels very uncouth, I have to say. And if you're trying to look slightly like you know what you're up to… (Laughs)… I mean it's bad enough as it is without adding that into it.

Some workplaces offer shower facilities to address this issue (see following section). Further discussion of how this is managed by regular cyclists will be included in the following chapter, but the interview comments indicated that this could be an issue in warmer weather and more formal clothing.

Lack of bike parking, shower and locker facilities

In the travel planning survey the provision of bike parking and shower, changing and storage facilities for cyclists and other active transport users was mentioned by some cyclists – significantly more than drivers-only, unsurprisingly. As most of the survey respondents were moving into newly built facilities, most came with bike parking and shower facilities[23] – a higher level of provision than would be expected in most, older workplaces. As a result, comments tended to relate more to the quality of spaces provided rather than requests for their provision.

There were some requests for secure parking, but as most new buildings had parking spaces, the main issue seemed to be crowding and the capacity of those spaces to meet demand. Limited facilities could introduce an artificial cap to numbers cycling, in a similar way to the limits on car

[23] A requirement for new buildings in Christchurch.

parking (although to much less significantly extent). Indeed, some similar language was used: "I hate not knowing if I will have somewhere to park my bike each morning". Full bike parking areas could become quite crowded and it could be difficult to fit the bike in the available space and to lock it. However, secure parking was preferred over none at all:

> Want to bike but employer does not have a safe bike area. Bikes are already being stolen. [...] Purchased a bike pre move – but employer will not cage bike park in building.

As well as bike parking, other facilities for cyclists existed in most of the new workplaces surveyed and included showers, changing rooms and storage lockers. While there were a couple of requests for such facilities in places lacking them, most related to the capacity and functionality of the facilities provided. Some frustration with this was evident in the comments:

> Our new workplace has not been designed by a cyclist. It was designed I presume by some overweight government official who wouldn't understand what it was like having to bike to work on a wet day. This basic fact is very disappointing.
>
> Get office lockers sorted, it's been a month now.

Details of design execution were raised by a number of respondents with respect to facilities provided, including the extent of the provision. This included showers ("showers point straight at door, so either wet the floor or stand in cold shower while it warms up", "showers and benches too small", "more showers"), changing rooms ("mirror/power point in ladies change rooms for doing hair", "no benches near lockers"), storage lockers ("not enough room in lockers for motorbike jacket to hang", "we really need [...] a locker for EACH staff member. [....] Sharing lockers is not an option when you need to keep a change of clothes, toiletries etc at work!", "more lockers available") and drying spaces for wet clothing ("very small drying rack", "a wet/drying room to put our wet gear", "better ways of storing / drying towels and shoes"). These comments suggest that even where provided, these types of facilities are not as comfortable or convenient as facilities at home and, therefore, need to be well designed to work well for those using them.

This discussion of workplace facilities emphasises some of the complexities of cycling as a transport mode. Cycle parking is much more space efficient than car parking, but cars allow clothing suited to the destination, managing body temperature, protect the occupant from the weather and do not require special equipment or clothing to operate.

Further travel – trip chaining, work-related travel

A common reason stated for needing a car in the travel planning survey was for work related travel during the day or for visiting other destinations on the way to or from work.

When work related travel was required during the work day, such as visiting clients off-site, this was simply presented as a 'need' for a car, possibly because clients could be spread over a wide area. Some respondents had company cars available for their own work travel and some were also required to have the car available for others to use during the day. Some of the interviewees were willing to cycle short distances to work meetings during the day, but most saw cycling as limited to special clothing, before and after work only.

The use of a car was often mentioned as a requirement for further travel outside of work, especially activities, errands, shopping, social events or sport/ exercise after work, presumably due to distances, loads to carry and darkness. In some cases this was used to justify using a car:

> After work I don't go straight home, I go to various other places such as the gym, supermarket, visiting friends and family (who all live in different parts of town). It would be too time consuming and complicated to do so in anything other than using my car.

It was more commonly used, however, by those who typically cycled, to explain why they do drive from time to time:

> If I have appointments I take the car, if not and weather permitting I bike

> Sometimes it is handy to have the car after work when you have somewhere to go instead of your bike

Physical effort, tiredness/ lack of energy/ enthusiasm

The effort required to cycle was only mentioned by one of the travel planning survey respondents ("Rain, laziness, and fear of getting killed on my bike stop me from biking."), but it was also mentioned by some of the regular cyclists interviewed. Claire intentionally did not own a car because:

> Claire: If I had the decision each morning, "Oh, are we going to get on my bike or the car," and then I can see that it would be quite easy to sometimes be like, "I can't be bothered. I can't be bothered to get on my bike."

Sarah also found a longer ride of around 10 km each way to work tiring: "I do get sick of it and I think one of the reasons why I'm getting sick of it is because I have to bike such a long way to work." One of the participants at the ICEcycle event had cycled to work occasionally, but he usually took the bus to

work: "I am using [the bus] because Hornby is too far every time because I need to do some work and it will use much energy on the bike" [Sunil]. Like some of the other participants, however, Sarah reported that that reluctance passed once she started riding: "sometimes it might feel an effort but once you're on the bike it's actually more enjoyable".

It is likely that the physical effort required plays more of a part than what was self-reported in the travel planning surveys. The interviewees make it clear that there are times where the physical exertion or getting too hot can become troublesome, in ways that people less devoted to cycling would be unlikely to accept. So it is possible that it may be under reported because people would be less likely to volunteer this for fear of being seen as 'lazy' or perhaps it was simply seen as an obvious component of cycling.

4.3.3 Differential/ inequitable factors

It is important to note that the ability to ride a bike – whether physically or practically – is not uniformly distributed across society, and nor is access to a car as an alternative. Some are not physically able to ride a bike easily, while for others, cycling may be difficult due to where they live or their family commitments, or cycling may not be optional due to inability to afford a car. There are also gender differences in cycling. Some of the factors at play are:

- Disability/ injury/ poor health
- Age
- Gender
- Family commitments
- Home location
- Affordability – travel costs, car ownership costs

Of these, gender and home location will be described further below.

Gender

Although gender was not mentioned specifically in the travel planning survey (and not recorded) and only mentioned twice in the interviews, the Household travel survey data have women making only 28% of cycling trips (Figure 17), a ratio of 2.5 trips by male cyclists to every trip by female cyclists. The survey and interview data were not able to shed light on these differences in detail, however, some

differences were evident on the basis of gender. Literature lists different perceptions of risk, an unappealing sporty image of cycling, having more to carry and higher need to travel with children as potential reasons for the differences (Aldred et al., 2016). In the interviews, men were more likely to carry light loads for commuting only, while women tended to have bikes set up for more carrying capacity and general purpose cycling, consistent with the literature. Issues with attire or appearance, such has hairstyling, were only mentioned a few times, but it is possible that these issues were understated. These latter points may explain the higher rate of general errands by women and lower rate of commuting to work in Figure 17.

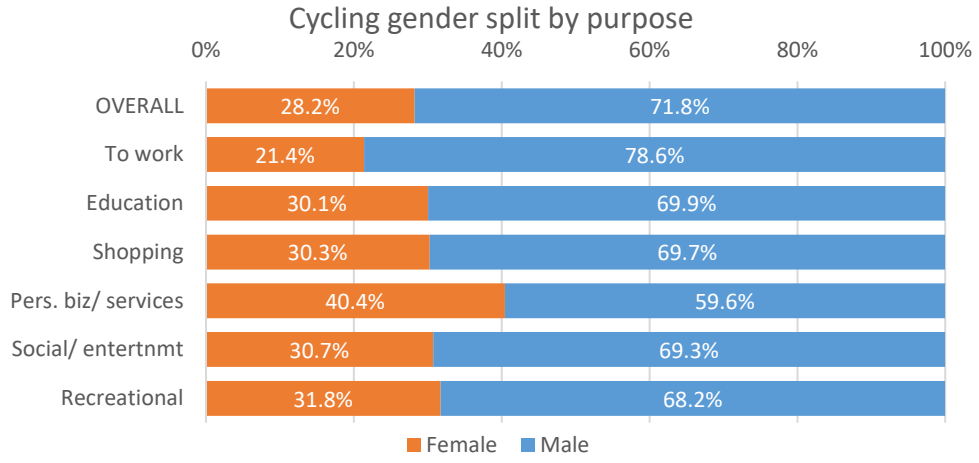

Figure 17: Gender split of cycling trips in Christchurch by trip purpose. Source: Household Travel Survey 2004-2014, Ministry of Transport, New Zealand.

Home location

Figure 18, showing percentages cycling to work on Census day 2013, illustrates that cycle commuting is not equally accessible to all household locations. Clearly, cycling to work is a more attractive proposition for those living closer to the central city with a higher density of workplaces (especially office buildings, given the high cycling rate evident in the travel planning survey in Figure 4, p. 91). Cycling rates are especially low, in the satellite towns, notably in Rolleston to the southwest which is the fastest growing area in the greater Christchurch area. This pattern is likely related to the distance limitations of bikes, perhaps along with the suitability of rural roads for cycling, but it means that cycling is not equally feasible for all as a mode of transport.

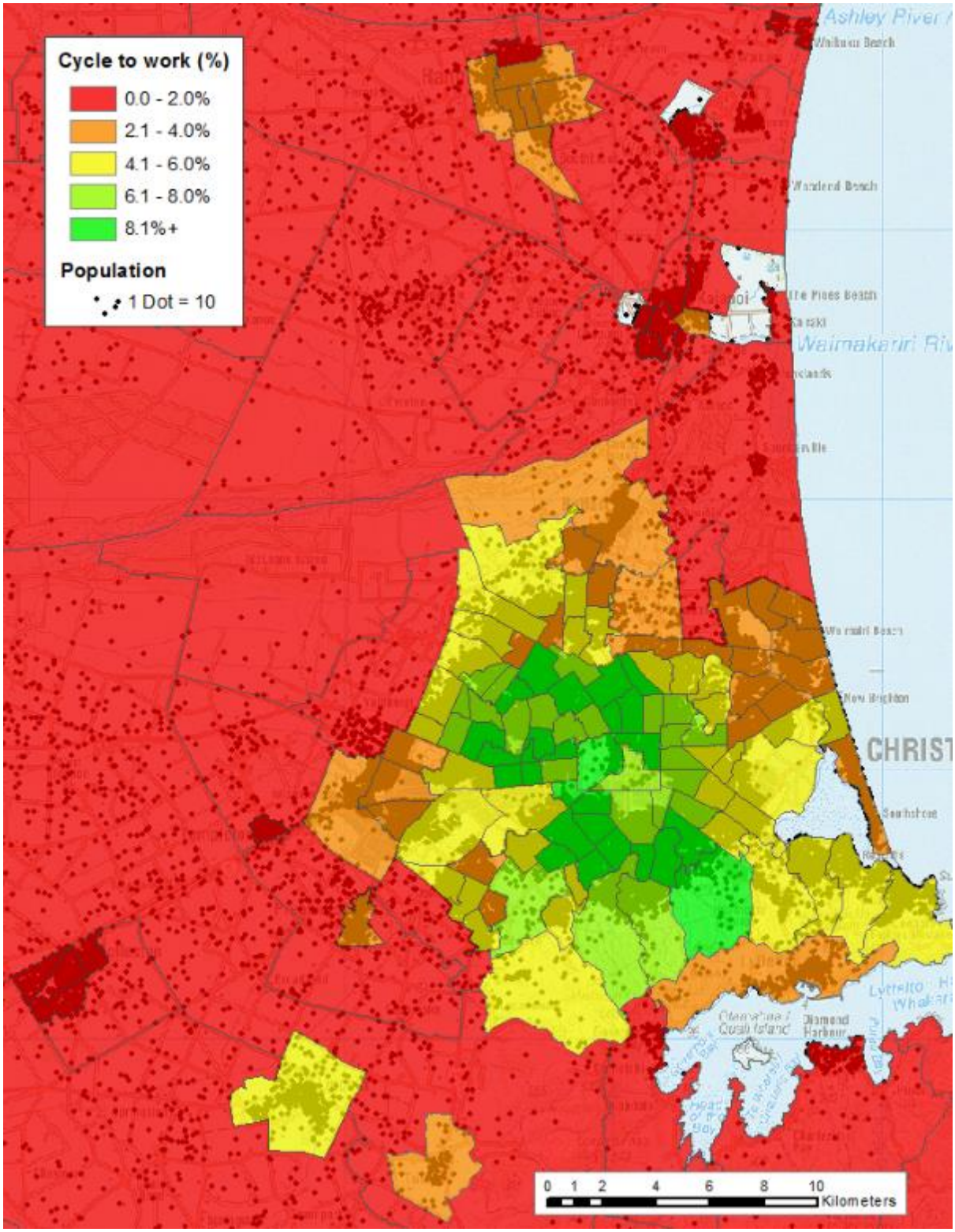

Figure 18: The percentage of people travelling to work on Census day 2013 who cycled, applied at Census area unit level. Black dot (in background) = population (1 dot = 10 people), to indicate residential areas. Source: StatsNZ.

4.3.4 Favourable external factors

There are, of course, also positive external, infrastructural factors which make cycling more appealing, which often include provision of some of the aspects noted as missing above. These include:

- Separated cycleways and safe routes
- Secure bike parking
- Shower and locker facilities

These factors were mentioned less frequently than the challenging factors mentioned so far, however. Shower, locker and secure bike parking facilities have already been discussed earlier.

Separated cycleways and safe routes

Conversely to the lack of a safe cycle route being a challenge to everyday cycling, the *presence* of a safe route, especially the newly constructed separated cycleways, was a benefit for those where they were available and worked for them on their route:

> Really enjoy the bike pathways in town where I feel safe and it is saving me on car costs.
>
> I won't cycle on busy roads, so the new cycle routes are a very good motivator.
>
> I look for low stress quiet suburban back roads to travel home – I use good cycle lane routes to get to work.

The interviewees also reported that they could relax a lot more on the cycleways and did not have to be as constantly vigilant as in other locations. They also felt that the cycling infrastructure brought a sense of legitimacy to cycling, because they often felt "at the bottom of the food chain" on the roads [Sarah], which shifted at times such as when lights would automatically change for cyclists, prioritising them over other traffic. These observations are covered in more detail in the next chapter.

4.3.5 Personal benefits

As well as the positive external, infrastructural factors, there are a number of benefits to the individual that were reported by cyclists. These include:

- Health/ exercise
- Cost savings
- Ease, convenience

- Environmental impact
- Enjoyment of cycling

These factors will also be explored in the following chapter from the perspective of the regular cyclist interviewees.

Health/ exercise

A strong health and exercise motive to cycling was the most frequently mentioned benefit of cycling in the travel planning survey. It was seen as a way of 'killing two birds with one stone' – travelling somewhere while also being active and getting some exercise:

> Great exercise in the morning and evening

> Pre-city I used to get to my gym in Rangiora at least 3-5 times/ week. Now I substitute the gym with biking but still try to get to the gym a couple of times per/week

> I drive half the distance and bike the rest, it saves on fighting for a carpark and provides 60min of exercise a day.

One person was in fact annoyed that the distance to work had decreased reducing the exercise motive to the point where they might as well catch the bus:

> A key factor in choosing to bike to work before the move was the distance . I could do a good workout to and from the office. The shift has cut travel distance to less than half - which I am unhappy about.

Cost savings

Money saving was also mentioned as a benefit of cycling – but usually simply as "cost saving" with little explanation, other than a relativity to bus fares and car parking and petrol costs.

Ease, convenience, speed

A number of cyclists also mentioned that, commuting by bike was faster in heavy 'rush hour' traffic, especially for workers in the central city and when walking time from a car park was accounted for:

> I tried driving and parking on one occasion however found that it took twice as long as biking and finding a parking space was stressful!! I prefer the faster + stress free options of bike / bus.

The travel time could also be more predictable by bike due to being less sensitive to traffic congestion. So, the bike appears to work especially well when the car parking is limited and traffic is congested.

Environmental impact

Surprisingly, only four cyclists briefly named the "environment" benefits as a reason for cycling, but without elaboration, despite the travel planning briefing presentation to the participants specifically mentioning this before the travel planning sessions (although the survey was conducted later). As will be discussed more in the following chapter, although the rate of environmental concern was higher amongst the everyday cyclists, it was still little mentioned.

Enjoyment of cycling

Many simply enjoyed cycling – enjoying the sense of freedom, being outdoors and feeling more connected to nature and community. Some simply found it less stressful than the car or bus: "Easier, can get right to the door, less stressful than all other modes". As a result some also saw it as a good transition between home and work: "Love biking for the downtime and transition from work to home"; "a great way to unwind post shift".

A small number of survey respondents also reported enjoying "fresh air" and being out in "nature", enjoying a pleasant route into work, such as through parks, especially in good weather, so where such a route was available to commuters, this was seen as a positive factor:

> I will try and follow river side paths where I can to make the trip more enjoyable.
>
> Fresh air; seeing nature and what's happening in Christchurch.

4.3.6 Car-stoppers – barriers to driving

Although this research is exploring the factors that might lead people to choose to cycle, as mentioned earlier, modal choice must be made relative to other modes – of which the car is by far the most dominant. The key barriers to driving include:

- Lack of free/ affordable, nearby parking
- Traffic congestion
- Driving stress and frustration

- Poverty (car ownership costs)
- Disability, age

Of the list above, only parking availability is a significant, widespread challenge to the effectiveness of the car, and can apply to all drivers for certain trips. What is most notable is that in comparison to the bike, the car has far fewer potential barriers.

Lack of free/ affordable, nearby parking

Of all the issues listed above as affecting the feasibility of driving as a mode of everyday transport, the availability of nearby free or affordable car parking was by far the most significant. The car is a very flexible option for personal mobility in Christchurch, however, its key vulnerability is that it requires space to be stored near the destination when not in use. The whole travel planning programme itself was predicated on a predicted shortage of parking in the rebuilt central city. This was evident in Figure 5 (on p. 96) where car parking was rated the highest of nine factors influencing modal choice and in Figure 4 (on p. 91) where car driving fell from 70% modal share pre-move to 42% post-move, once the parking was constrained.

The comments indicate that the issues that relate to parking are proximity, availability and cost, often with each having to be traded off against the other. Comments most often referred to availability, some passionately ("There is nowhere for car parking"; "THERE IS NOT ENOUGH PARKING, SERIOUSLY"), however, this was typically a shorthand for a lack of *free* and *nearby* parking:

> I tried parking in town and paying - found it difficult to consistently and easily find a park and one that was reasonably priced and not too far from my office.

Availability of parking was a function of proximity, time of arrival and price. Those willing to walk further from their car to the office could park for free: "I now park for free on outskirts of city and walk in". Others would arrive at work early: "I travel to work early to get a park". Otherwise, they had to pay to park nearby:

> Parking is highway robbery, as I have to park close enough to walk to the building and it cost me $16 for 3.5 hours the last time I drove myself in.

This enforced conundrum was often unpopular, especially for people who had little option but to drive:

> Convenience. That's all. I want to get where I'm going without detours, park without hassles, and I don't care if biking is healthier, I am not going to bike for 3 hours to get to work.

> I feel I have no option. Travel time is cut down BUT, parking adds to the pay cut.
>
> Pretty difficult finding a park. The new central city options presume people only ever need to get from home to work and back again. Not easy going to appointments, funerals etc. when you're working.

This could be more of a challenge for people with mobility issues that made other modes difficult for them, forcing reliance on the car.

However, these difficulties did also spur many towards the bike (from 17% modal share pre-move to 25% post-move – Figure 4, p. 91):

> Lack of parking actually makes biking the quickest option
>
> I have brought the car only once - not planning on doing this again unless I really need too as the parking is too expensive, especially when I get to work at 9 am and there are no cheap or nearby parks available. [Cyclist]
>
> Biking is the most reliable as the time taken isn't dependent on congestion, parking and distance to walk from car.

The bus was the most common modal switch post-move though (increasing from 4% to 20% post-move – Figure 4).

Traffic congestion, driving stress and frustration

Traffic congestion was the third highest rated factor influencing modal choice in Figure 5 (on p. 96), however, it wasn't mentioned often in the comments. When it was, it was often by cyclists enjoying their ability to avoid it and its related stress and frustration: "Tried driving once, but too frustrating due to traffic jams, roadworks in the local area and lack of affordable parking" [cyclist]. Traffic congestion appeared to be more of a temporary annoyance to drivers, rather than an outright obstacle (similar to, say, headwinds for cyclists). For some – often those who favour the active transport modes – the car can be restrictive and isolating from the environment and they feel quickly frustrated in traffic. These people tend to favour biking or another active mode.

Poverty (car ownership costs)

The high car ownership rate in the Canterbury region of 0.93 light vehicles per person (Ministry of Transport, 2021b) suggests that the vast majority of people in Christchurch are able to afford a car, however, poverty can still be a significant factor in modal choice and transport inequality for some.

This did not arise in the travel planning data – most likely due to the relatively well-paid professional office settings – however it did arise during the interviews.

Two of the interviewees and many of the attendees at the ICEcycles bike maintenance workshop (which offered free bike repairs for those unable to afford them) were unable to afford a car, leading to cycling out of necessity. For Judy, being unable to afford to repair her car (along with a strong concern about climate change), led her to ride a bike for transport, in spite of the difficulties:

> Judy: So, I've started riding the bike. I forced myself into bike riding. So my car, um, my mechanic told me [...] that my clutch needed attention [...] very very soon and um I can't afford it. So, I took the battery out of it and I forced myself into bike riding, which hasn't always been, um, fun. [Laughs].

Rajesh also had a similar concerns with financial cost and environmental impact:

> Rajesh: Actually, right now, I haven't got a car to myself because I think it is a big cost to me, you know. You know, it's a cost to me. Other than wasting all the resources of the petrol and everything [...] there are so many expenses associated with it also.

The organiser of the ICEcycles event noted that "people don't have much money around here, so it's a cheap way of getting around" [Steve] or, more pragmatically for one attendee:

> Tama: It beats bloody walking, mate. You want from A to B, brother. A to B.

4.4 Summary

This chapter set out to investigate *when* utility cycling happens in Christchurch, i.e., the circumstances under which it takes place. The travel planning programme, in particular, revealed that, when actively considering everyday travel options, the selection of a mode of transport was typically the first and most important level of decision-making that people addressed. Seen in this light, travelling by bike for the purposes of transport, first and foremost, requires that the bike be 'chosen' over and above the competing modal options – a 'choice' that must be made within the context of that person's immediate daily circumstances. In this way, the moment of modal 'choice' between the bike and (primarily) the car, while fully situated within the midst of everyday life, was revealed to be the key focus of this research.

The separation of everyday travel into such highly distinct modal channels represents a practice landscape that has been heavily prefigured into a narrow range of options. Each modal option represents a very different set of capabilities and a very different experience for the traveller, but few practicable options exist outside of the main modal practices. As a result, 'choice' with respect to

everyday travel is actually forced into a discrete *modal* choice, where the mode to be employed accounts for the lion's share of the decision-making component – in other words, it is the choice of mode that has by far the greatest impact on the outcome of a trip.[24] For example, if one has chosen to travel by bike, there are very few decisions that one could make – such as the choice of bike, clothing or route – that could vary the experience of that trip by the same magnitude as travelling by car instead. This means that transport 'choice' is mostly *modal* choice.

This chapter, then, in this light, revealed the process of selecting between practices to be a weighing up the *relative utility* of the modal options in the face of a particular everyday context, based upon what *worked best* for that person in that moment. Thematic analysis of the travel planning survey comments and the interview content revealed a common set of factors that impacted upon modal choice time after time across a wide range of accounts. Although each account described a unique situation, and each involved a unique arrangement of factors, taken collectively, the stories were found to draw upon a consistent, finite set of factors that are regularly encountered in the course of modal choice in everyday life. This suggested that by following accounts of the moment of travel and modal 'choice', a context to that moment of acting emerged, consisting of factors that could be drawn on or that influence that acting. This was a process of sense-making that occurred in the choice *between* modal practices.

The identified themes were summarised in Table 5 (on p. 101), grouped according to their level of impact on the feasibility of the bike as a mode of transport. The 'showstoppers' – including long distances, travel time pressures, and carrying passengers and loads – were identified as the factors that, even if encountered in isolation, would render utility cycling either impossible or very difficult for most people. Factors identified as challenging to cycling – such as weather, steep terrain, perceived lack of safety, etc. – were items that, while not insurmountable, would be considered uncomfortable or inconvenient by many. It was also noted that the utility of the bike for transport purposes was not evenly distributed across the population, with aspects such as age, gender, home location and disability, injury or poor health potentially hindering access to utility cycling for some. There were, however, also personal benefits and external factors that worked in favour of utility cycling. These included the health benefits of physical activity, cost savings, avoiding traffic, reducing environmental

[24] Note that the term 'modal choice' is used here consistent with the common parlance, but as will be discussed later, consistent with practice theory the selection of a mode is not always intentional or rational 'choice' and nor does each mode present on an 'even playing field' against the practice landscape.

impact and simply enjoying cycling. Separated cycleways and safe cycling routes were also associated with positive experiences of cycling. Finally, for comparison, the 'car stoppers' – factors limiting the utility of the car – were also identified. Of these, lack of free or affordable parking close to the destination was identified as the primary obstacle to driving. Traffic congestion was also noted as a lesser inconvenience, and poverty, disability and age as barriers for some.

Seen in this light, it becomes clear that there is a marked imbalance between the functional utility of the bike and the car as everyday modes of transport. It was seen that the bike could be significantly unseated by a relatively long list of common daily travel scenarios, which could be easily accomplished by car. In contrast, for most people, parking was the only major obstacle for the car. The bike undoubtedly has its advantages, however, these were nearly all of a secondary, less functional nature (which were rated lower in the travel planning survey, Figure 5, p. 96). This functional capability of the car has meant that it has become the yardstick against which the bike is compared. As a highly capable machine, able to carry people and loads in comfort and at speed, it has set the expectation for what is reasonable to consider possible. Throughout the surveys and the interviews, while the limitations of the bike were very apparent, there was not a single comment about the limitations of the car with respect to its safety, its load or passenger carrying limits or its ability to cover distances. This shows that the car has become the default mode of transport, and the utility of the bike will always be measured relative to that of the car.

Analysing utility cycling in terms of modal 'choice' in this way, as demonstrated within this chapter, has highlighted that the promotion of utility cycling must always be considered in light of relative utility to the car. To neglect the role of the car in any promotion of the bike would be to overlook that transport 'choice' has been to a very large extent prefigured into *modal* 'choice' by the everyday transport practice landscape. This realisation resulted in an important refining of the research focus to consider utility cycling in terms of modal 'choice', rather than utility cycling alone, as an isolated practice. It showed that the relative utility of the bike and the car could be revealed thematically in terms of a set of factors relating to the everyday setting in which the 'choice' was being made. As we will see later, it is these factors that can be seen to empirically define the practice landscape within which modal 'choice' is performed.

However, before discussing these dynamics that occur in the 'choice' between practices further, the next chapter will examine how utility cycling as a practice is made to work as a mode of transport by those who cycle on a daily basis.

5. How utility cycling works in Christchurch

The previous chapter took a 'zoomed out' perspective on utility cycling, examining it as a practice as a whole, relative to the other modal practices. It presented everyday transport as a discrete 'choice' between the four main modal practices, of which utility cycling was one option. Whether the bike was chosen, would depend upon whether 'utility cycling', considered as a single practice, was determined to be the option that worked best amongst an array of everyday factors that might be encountered. Its *relative utility* was compared to the other modes. In this way, the previous chapter looked at *when* people choose to cycle – the circumstances under which utility cycling works well as a mode of transport.

Where the previous chapter treated utility cycling as a 'black box' to be compared against the other modes, in this chapter, we peer inside that box to better understand what produces the observed relative utility to the other modes. This chapter now 'zooms in' on the practice of utility cycling itself and at *how* people make it work for themselves in their daily lives – but always considered relative to the dominance of the car, as established in the previous chapter, which is always readily waiting in the wings. This approach begins to look in more detail at how regular everyday cyclists negotiate their way through some of the challenges of the bike in order for it to prevail against the car. At the same time, this can yield insights into when the bike does *not* work, because most of the interviewees also owned cars. The aim of this chapter, then, is to explore the threshold between the bike and the car with an interest to understanding the utility of the bike and the benefits and the challenges it faces relative to the car.

The chapter begins with a visual interlude into utility cycling in Christchurch. This paints a picture of the practice through a montage of many images in order to familiarise the reader with the nature of cycling in the city. This provides a visual context to stories that follow, of how everyday cyclists make utility cycling work for themselves on a day-to-day basis. The remainder of the chapter then takes the individual factors outlined in the last chapter and weaves them into narrative, sense-making wholes as they appear to the cyclist in the midst of their acting. The zoomed out review of the whole practice from the previous chapter is substituted with a zoomed in view on its situated accomplishment. The single 'practice' devolves into a dynamic and emergent space of many different expressions of the practice as experienced by the individuals in their daily travels – the 'practice-as-performance'. This suggests that if utility cycling is to make successful inroads into replacing trips

made by car, then attempts at promotion will have to account for a wide range of factors applied in a wide range of situations for a diverse range of people and personal preferences.

5.1 Street observations and image gallery

In July 2016 (winter) and February 2017 (summer), 526 cyclists were observed riding on the streets of Christchurch, most during the morning 'rush hour' period. The aim of these observations was to provide a qualitative, visual sense of how Christchurch cyclists cycle in terms of their bikes, clothing and equipment carried. Some of the observable features from these pictures were categorised in Table 8. It should be noted, however, that these numbers are only intended to be considered in a broad, relative sense to create an overall image of how cycling is performed in Christchurch, not as a representative, quantitative survey. Images exemplifying all of these features are shown in the image gallery on the following pages.

Table 8: Summary of features observed in street observations.

		Female	Male	Total
	Gender	35% (182)	65% (344)	100% (526)
Type of bike	Mountain bike	47% (86)	47% (160)	47% (246)
	Road	14% (25)	25% (85)	21% (110)
	Hybrid	26% (47)	27% (92)	26% (139)
	Retro/ Upright	13% (23)	1% (5)	5% (28)
	Electric	0.5% (1)	0.3% (1)	0.4% (2)
Carrying method	Backpack	66% (121)	71% (244)	69% (365)
	Shoulder bag	4% (8)	8% (26)	6% (34)
	Panniers	19% (34)	13% (43)	15% (77)
	Basket	14% (25)	0% (0)	5% (25)
Clothing	Cycle clothing	38% (69)	48% (164)	44% (233)
	Street clothing	62% (113)	52% (180)	56% (293)
	Hi viz	40% (72)	33% (115)	36% (187)
	With others	4% (7)	3% (12)	4% (19)

Beginning with gender, the ratio of 65% male to 35% female agrees broadly with the male dominance reported in the Household Travel Survey and Census findings, with an approximate 2:1 ratio of male to female cyclists.

Next, the type of bike ridden suggests that cycling is still predominantly seen as a sport in New Zealand. As can be seen in almost all of the images in the image gallery that follows, a typical Christchurch bike is a mountain bike (47%), road/'racing' bike (21%), or a 'hybrid' type bike (26%),

which is a road-focused bike with straight handlebars. These types of bikes typically consist of only two wheels, a frame and a seat, without the mudguards, chain guards, skirt guards, carrier racks, fixed lights and step-through frames of the bikes typically ridden in Europe as prevalent (see Figure 28 and Figure 29, on pp. 146 and 147). Only 5% of bikes observed in Christchurch were of this 'retro/upright' style, even if with more modern styling, and nearly all of them were ridden by women (13% vs 1%).

In terms of carrying loads, 75% used either a backpack (69%) or shoulder bag (6%) (see Figure 19 and Figure 20 for images, from p. 141) and only 20% carried items on the bike itself with pannier bags (15%) or a basket (5%) (see Figure 23 and Figure 24). Women were more than twice as likely as men to have carrying capacity on their bike (33% vs 13%) – the difference largely due to only women riding bikes with baskets (14% of women).

Clothing worn on the bike is consistent with the types of bike ridden. Approaching half of the people observed (44%) wore clothing that appeared to be specifically for cycling or exercise, such as a T-shirt and shorts, rather than more typical 'street clothing' for those not exercising. It was not always possible to determine whether these were everyday clothes the person was intending to wear at their destination, or not – especially in summer – however, visual evaluation allows an approximate indication of the prevalence. Another notable feature of the clothing is the frequent use of 'hi viz' (fluorescent, high visibility) clothing or backpack covers (36%) as a safety measure to improve visibility in traffic. The Christchurch images contrast starkly with the images from Amsterdam and Copenhagen in Figure 28 and Figure 29, in which *every* person appears to simply be wearing regular everyday clothing suited to their destination – with a distinct absence of the fluorescent yellow hues evident in Christchurch.

Although the cycling in Christchurch was overwhelmingly of a 'technical' or 'sporty' style, with a mountain, road or hybrid bike and often with exercise clothing, there was a small percentage of (subjectively) 'stylish' cyclists. This was most commonly expressed as women riding in 'cycle chic' or 'Frocks on Bikes' style, with a retro styled upright, step-through bike, with mudguards, chain guard and a wicker basket on the front, ideally also wearing a floral dress or stylish clothing (see Figure 24). This is not as prominent as it is in the European images, but has a small presence in Christchurch. Another less prominent trend is for the minimal, 'fixie' bike for men (Figure 25). Figure 26 highlights the difference between these trends, where women's bikes in this style are equipped for more practical riding and carrying loads, while this style of men's bike tends towards stripped down retro racing bikes.

Some other points noted from the observations were that only 4% of people were cycling with another person. This may be partly influenced by many observed being commuters, but it also suggests that cycling is largely a solo mode of transport.

It was also noticed incidentally that *all* of the cyclists observed who were wearing school uniforms rode either a mountain bike or a road/ racing bike (with the exception of a single hybrid) and all, except for one person carrying nothing, carried a backpack. Every bike was a minimal sport or recreational machine without any accommodation for utility cycling such as carrier racks, mudguards or chain guards, apart from the occasional removable rear mudguard attached to the seat post. This observation is remarkable for its uniformity and lack of variation. Practice theory emphasises the importance of how the new cohort to a practice is trained, and in the case of Christchurch schoolchildren it appears that the cycling focus leans heavily towards sport and recreational cycling.

5.2 Image gallery

The images on the following pages are intended to paint a visual picture of the cycling practice that is the subject of this research – literally, what cycling in Christchurch *looks* like. The practice runs far deeper than what images alone can reveal, of course, but this presentation provides a useful qualitative orientation and visual context to anyone unfamiliar with the Christchurch flavour of the practice, while at the same time providing a more structured overview of it for me as a researcher. Images of everyday cycling in Amsterdam and Copenhagen have been included to show how differently localised expressions of utility cycling practice can appear, to provide a kind of context against which to make sense of the Christchurch images. These cities were chosen because they are cities where cycling is a famously unremarkable and mainstream mode of transport.

To illustrate the features described earlier in Table 8, the following images, from Figure 19 to Figure 25 are a sample of one hundred of the images captured and loosely grouped. The number of images in each montage provides a visual indication of the prevalence of each observable style of utility cycling. Figure 26 shows a contrast of typical 'his' and 'hers' bikes. Figure 27 shows a selection of the interviewees' bikes. The Christchurch images can then be contrasted visually with the equivalent practices in the famous European cycling cities of Amsterdam (Figure 28) and Copenhagen (Figure 29).

Figure 19: Cycling in Christchurch 1: Cycling or exercise clothes, backpack, mountain bike/ road bike (28 out of 100). Source: Author.

Figure 20: Cycling in Christchurch 2: Typical street clothes, backpack, mountain bike/ road bike (20 out of 100). Source: Author.

Figure 21: Cycling in Christchurch 3: Typical street clothes, no bag, mountain bike/ road bike (11 out of 100). Source: Author.

Figure 22: Cycling in Christchurch 4: Hi viz/ fluoro clothing and equipment (25 out of 100). Source: Author.

Figure 23: Cycling in Christchurch 5: Pannier bags (5 out of 100, plus 4 in Figure 22 above). Source: Author.

Figure 24: Cycling in Christchurch 6: Women's upright style, most with basket on front (9 out of 100). Source: Author.

Figure 25: Cycling in Christchurch 7: Male minimalist style (2 out of 100). Source: Author.

Figure 26: 'His' and 'hers' bikes – examples of male minimalism and female upright style. Vintage market, Fendalton, Christchurch, December 2017. Source: Author.

Figure 27: Some interview participants' bikes. Source: Author.

Cycling in Amsterdam

These images are included to provide a qualitative and visual contrast and context to the Christchurch equivalents. In these images, cycling is notably more casual – simply a way of going about everyday business. Prominent differences from Christchurch are the absence of dedicated clothing for cycling, the absence of hi-viz and the much higher use of traditionally styled upright bikes with mudguards, chain guards, carrier racks and baskets, for everyday use.

Figure 28: Cycling in Amsterdam. Source: Screen capture from video: João Pimentel Ferreira, **Bicycles in Amsterdam [Full HD]**, ***YouTube: https://www.youtube.com/watch?v=XJqr19_Uu68, available under Creative Commons Attribution license (reuse allowed).***

Cycling in Copenhagen

The Copenhagen images are similar to Amsterdam: mainly practical upright bikes and everyday clothing. Of note relative to Amsterdam is that the men are riding more minimal bikes, more like in Christchurch, plus the examples of riding with children (which may be location specific).

Figure 29: Cycling in Copenhagen. Source: Screen capture from video: Streetfilms, **Safety at the World's Busiest Cycle Intersection (Copenhagen),** ***YouTube:*** ***https://youtu.be/003-zdZA8hk,*** ***available under Creative Commons Attribution license (reuse allowed).***

These observations suggest that Christchurch still has some way to go before cycling is seen as simply an everyday mode of transport, set up for carrying things and carried out in typical everyday attire. Most of the bikes used in Christchurch appear to be set up primarily as recreational and sporting machines, repurposed for transport. As we shall see in the following section, configuration of the bike can impact its utility for transport. Bikes set up for speed and agility – less comfortable with more of a head-forward riding position – without protection for clothing from mud, water and the mechanicals of the bike, without carrying capacity beyond a (potentially sweaty) backpack and without fixed lights, limit the usability of the machine for daily transport.

5.3 Interviews

While the casual street observation of cyclists was able to give a broad overview of some aspects of cycling, to understand how well it worked as a mode of transport overall required in-depth conversation with people who cycle on a regular basis. A lot of cycling research focuses on *whether* people cycle – the benefits and barriers for cycling, like those considered in the previous chapter. In this research the intention has been to complement the modal choice component with the utility aspect of the cycling mode itself, to explore *how* people who cycle for transport regularly make it work relative to the car. This complements the discrete nature of the modal choice dynamic by further understanding what factors lie behind modal 'choice' with a mind to potentially improving the usability of the bike as a mode of transport as well as better understanding its limitations. The aim of this section of the chapter is to explore the details of the relative utility of bike and car – the point up to which experienced cyclists will choose to travel by bike rather than by the ubiquitous car.

The semi-structured interviews were conducted with people who travelled by bike for transport purposes on a daily basis. They involved a wide-ranging discussion of their cycling practice which began with the question, "Can you tell me about cycling in relation to your life?" (inspired by Aldred, 2015) and then went on to prompt for more on how they made cycling work for them as a mode of transport – in terms of bike, equipment, roads, cycleways, weather, clothing, cycling history, experience while riding, perceptions, fit with identity, motivation, convictions, etc.[25] As with the travel planning comments, the aspects mentioned by the interviewees quite quickly saturated to a relatively large, but consistent, number of themes (listed in Table 9).

[25] See Appendix section 9.2 on p. 257 for examples of the question prompts.

Table 9: Factors influencing everyday travel by bike – the practice 'toolkit' of everyday cycling

Person Attributes	Person Needs/Wants	Mode (Bike) & Equipment	Trip Characteristics
Personal circumstances Wealth, living situation, profession, household role, family/ parenting commitments **Locations** Home location, work location, proximity to amenities **Status/ identity** Status, identity, personal values, personal style, social grouping, gender **Risk profile** Perception of cycle safety, perception of social safety **Attitude to cycling** Environmental motivation, community motivation, exercise motivation **Type of cyclist** Road/ racing, mountain biking, recreational, commuter, all purpose, car-free **Health** Fitness, illness, disability, Injury **Physicality** Enjoyment of cycling, propensity for physical activity, enjoyment of outdoors, attitude to getting hot/ sweaty, desire to connect to wider community **Knowledge/ experience** Habit/ familiarity, past experience, overseas experience	**Effort** Feeling tired, can't be bothered, comfort, mood **Pressures** Need for predictability, need for flexibility, time pressures **Logistics** Planning, preparation time, checking weather, managing clothing, equipment and loads **Future needs** Flexibility, other trips (trip chaining), respond to emergency **Timings** Time of day **Coordination with others** Time available, lateness **Perception of trip** Relaxation/ stress, transition time, time to self	**Type of bike** Road/ racing, hybrid, mountain, Dutch/ upright, electric, cargo, step-through frame, bike condition **Carrying capability** Panniers, basket, carrier rack, backpack/ bag, cargo bike tray, bike trailer **Clothing** Wet weather gear, hi vis, jacket, helmet **Accessories** Lights, mudguards, chain guard, mirror	**Purpose** Work/ study, shopping/ errands, grocery shopping, socialising, recreation **Physical parameters** Distance, travel time, terrain **Route** Cycleways, cycling infrastructure, traffic volume/ congestion, suitability of route, ease of route selection, perception of traffic and personal safety, pleasantness **Car parking** Availability, proximity to destination, cost **Destination facilities** Showers, lockers, bike parking, security of bike **Conditions** Wet weather, cold, heat, wind, darkness **Carrying** Load/ things to carry, passengers, children, security of belongings, ability to carry belongings **Personal presentation** Standard of dress, grooming required **Act of riding** Managing body temp, riding speed

There are too many factors to go into individually, but what this section considers is how the cyclists actually navigated, arranged and made sense of these factors in various combinations to make cycling work for them as a mode of transport, or not, relative to driving. This diversity of factors emphasises the need to apply any interventions toward the promotion of utility cycling across many levels of everyday life – well beyond attitudes and infrastructure alone.

As mentioned in Chapter 3, the interview data were coded in two stages: first, statement by statement as raw interview transcripts and second, as memos describing the overall narrative of the individual interviewee. The interview data revealed two sets of themes corresponding to each of these sources. The first set of themes related mainly to the details of the practice, which the interview transcripts revealed at length. These include the logistics of handling these many details along with safety concerns and the details of bike and equipment. The second set of themes, drawn more from the memos of each interviewee, highlight wider themes that come from sense-making across a wide range of the factors simultaneously. These include the diverse range and mix of benefits expressed from cycling, as well as three different classifications of types of cyclist. Commuter cyclists typically only cycled to work for transport purposes (but often rode a bike recreationally in their own time as well) while general purpose cyclists rode a bike for a wider range of trip purposes. The second type compared pragmatic or convenience cyclists, who rode the bike because it was faster or easier than the car (or they could not afford one), while conviction cyclists tended to be motivated more by a strong sense of the value of cycling for environmental, social or health reasons. The third type relates to different cycling aesthetic styles. Each of these items is expanded upon under the headings that follow.

5.3.1 The logistics of everyday utility cycling

One of the immediate impressions that arose from the interviews was the sheer number of factors that everyday cyclists had to take into account and address on a daily basis in order for cycling to work for them as a mode of transport. As highlighted in the previous chapter, there were a large number of factors that could either serve as a 'showstopper' – a serious functional barrier – or as a challenge or annoyance to the utility cyclist, especially relative to the car. Avoiding or dealing with all of these challenges could be quite logistically challenging for those cycling every day for transport. Some of the commuters, for example, had quite complex systems for carrying everything they needed or for storing clothes at work and carrying fresh clothes with them. Some of the general-purpose cyclists found the process of getting ready to ride – checking weather forecasts, working out what

would fit on the bike, packing it on to the bike, making sure they had not forgotten something, etc. – often quite involved and time consuming. Of these, the bodily challenges of cycling, carrying loads and safety issues are worthy of separate mention.

This complexity of cycling for transport stood in stark contrast to driving. A number of the general-purpose cyclists remarked upon how much easier it was to travel by car – almost to the extent of being surprised on the occasions where they travelled by car. This complexity, however, related primarily to factors that were classified as 'challenging' in the previous chapter, so the issues encountered were surmountable.

Overall complexity/ fragility

As mentioned, the large number of potential obstacles and challenges to utility cycling required a lot more attention to detail from the regular cyclists. This long passage from Sarah is a good example of the many ways in which cycling can be challenging logistically, especially with non-removable panniers:

> Sarah: Oh my God! It's… It's a pain. […] I've got to think about what I've got to pack, how to pack it, which bag I should be using. Can I use my black bag for work? Do I have to take some of it out? I'm like shuffling books and papers around trying to work out how to get it in my panniers. Depending on what I'm wearing I've got to put my bike clips on, or not. I've got to work out, decide whether I need a jacket or not, because I might start off cold but then I get hot later on. So do I start off and freeze […] or do I stop and take my coat off. That's a real pain. […] So, yeah, there's a whole lot of faffing around with deciding how to carry what I need to carry to where I'm going. Um… So that's a bit annoying. Whereas in a car you just jump in and chuck it in the back seat. […] I've got to check that I've got keys to lock my bike and do I need lights or not. Got my lights. Got my bike clips on. Hi viz. Try and stuff around with my helmet and off I go. […]
> And then when I get there, it's like sometimes it can be ages: you know, I've got to get all of the gear out of my different parts of the bike, sometimes I might forget things, like to get my drink in the panniers, or something like that, and then lock it up and get all my gear off. You know, if it's raining or whatever, dry myself off or you know if it's just normal then it's not so bad.

This passage neatly includes many of the different factors considered in this section, demonstrating how the many small issues of load carrying, weather, clothing, remembering lights, etc. can add up to some frustration. Jane also noted the bike taking longer than the car when preparing to leave:

> Jane: I piss around a lot. Um, but it's just little things like unlocking it, and you know making sure everything is right and putting on clothing and that stuff. So, you do need to put on a shell, something to keep the wind off, um, and often some reflective gear if it's night, or some lights. They just take a bit of time.

However, with a good system, especially if it involves removable pannier bags and fixed lights, etc., getting on the bike could be just as easy as taking the car. The contrast of Nikki's similar situation to Sarah, with better equipment, could not be more marked:

> Nikki: I'm taking that bag with all my laptop and stuff in it, but I have to pack that regardless, and everything else that I need is already on my bike. So my helmet is on my bike, my hi viz vest is on my bike, my raincoat's at the bottom of my bike [bag], and my lights are attached, so actually, in some ways, it's easier, isn't it. You just jump on the bike and you're gone.

For most, like Stefan, a little more effort is involved ("it does not take much longer, maybe two minutes or so") and he has a system set up for his (electric) bike:

> Stefan: It's kind of a routine every day. So, so I have to attach my battery, I have to remove the batteries for the front light and put the lights into my bag and attach… yeah. Get my stuff. That's basically it.

However, it is the contingencies that can require more forethought and planning, such as whether lights or rainwear will be required, because each item has a weight and space penalty. The downside of such compromises can prevent later travel, such as getting caught out in bad weather, staying somewhere unexpectedly late or forgetting to bring lights for the bike ("lately I forgot my lights, […] so I had to call [my wife to come and get me] just because I forgot my light" [Stefan]). This highlights the sensitivity of the bike to single factors making it incapable, or at least poorly suited, to completing a required trip. Usually, alternatives are available, but the result can be highly inconvenient.

These challenges arise mainly because the bike has limited capability relative to the range of everyday requirements people might have (as outlined in the previous chapter). The car, by contrast, is mostly over-engineered for everyday travel, with all of those capabilities built into the vehicle. For most trips, the car is well within its speed and distance capabilities, load and passenger capacity, weather tolerance and it is always set up for night driving. Therefore, in a car, these limits rarely have to be considered – plus, it is safe to assume in most circumstances that those capabilities will be sufficient to deal with unexpected circumstances. The everyday ramifications of these differences are that the car requires a lot less forethought and preparation. This was demonstrated by some of the regular cyclists, on occasions where they do travel by car, being almost surprised by the relative ease of the car: "If I've had to go and pick someone up from the airport or something – rarely – and you're just, like, 'Oh, I'm ready already. I just go to the car!'" [Claire], or: "You can just like pick up the car keys and go" [Sarah].

These differences in capability can have ramifications for the organisation and scheduling of the daily 'timespace' – the spatial and temporal organisation of when to be where. Emma sums this situation up well, in a quotation mentioned in the last chapter:

> Emma: Outside of, like, work hours and stuff, I tend to use the car for, like, visiting and… I feel like with my bike I tend to plan a bit more and I would tend to go, "Okay, going to go here and get XYZ or I'm going to go to so-and-so's house and back again," whereas with a car I feel I can be just a bit more free.

Because of the bike's more limited capabilities, she prefers to know in advance where she will be going and when and carrying what, but in less planned situations such as socialising, those limits could end up restricting her options. This could include an unexpected invitation to the other side of town, late at night, or a need to transport someone else. The car is more liberating in such circumstances.

For the same reason, the limited capacity of the bike also suits commuting to work better than general purpose cycling. Because the trip and the destination are well known in advance, and the same almost every time, the journey is more predictable and controllable, and systems can be set up in advance. For example, commuters were able to use a shower and leave clothes and shoes at work and knew where they could park their bike. Alan represented this situation well. He used to sometimes do temporary stand-in work at different, unfamiliar workplace locations. In those cases, even though he knew how to get there by bike, he would often drive because of uncertainty about facilities upon arrival:

> Alan: I knew where I was going, but maybe I didn't know if I could get changed when I got there or whether I can get in, how early I can get there, so I'm going to go late. […] Probably logistics at the other end, more than anything – having to take clothes and stuff, where I know I'm set up where I am now.

This goes some way to explaining why cycling is a lot more popular for commuting (to school or work) than it is for other (non-recreational) purposes (4.6% share of commuting trips, compared to 2.7% of all trips)[26].

The bike can be configured, however, in ways that increase its capabilities and make it more resilient to the unexpected (explored in a following subsection). As demonstrated by the contrasting experiences of Nikki and Sarah above, the value of such bikes and accessories, well-designed for utility

[26] Source: Household Travel Survey data for Christchurch

cycling, is that they can reduce some of the small irritations described. A bike that is set up to easily ride in everyday clothes with a step-through frame, mudguards and chain guard protecting clothes, lights permanently attached and powered by a dynamo, along with a good carrying capability that can easily be removed from the bike, is much more likely to present the rider with Nikki's experience of "just jump on the bike and you're gone" rather than Sarah's struggles with an overwhelming array of small details.

Systems and capacities for carrying items are a key aspect of the logistics of utility cycling and will be discussed next, followed by two other significant logistical considerations: carrying children and passengers and the physical, embodied aspects of riding a bike.

Carrying things

The need to carry items can be a significant obstacle to cycling relative to the car. Obviously, for some trips, such as bringing a new television home or taking a prepared food dish to a social event, it is clear that in these situations a standard bike would be inappropriate. However, there are more typical, light loads that are within the capacity of a bike, but this varies a lot by the carrying capacity available. For example, both Miles and Stefan had relatively small pannier bags that could only just fit their basic needs for the day. This meant that if Miles needed a warmer jacket to wear during the day, he might have to take the car, because it would not fit in his bag, and Stefan was unable to take a camera with him to work. Alan was also constrained by his smaller pannier:

> Alan: That's just a bit small [current pannier], but I'm getting used to that. It means I have to carry less. And I keep forgetting things, and you can't just tuck things at the last minute in a pocket you have to [open?] it out, which is a pain. But hey, that's just what it is.

Nikki, on the other hand, had two pannier bags fitted to her bike with plenty of excess capacity which allowed flexibility for unexpected loads, thereby making her bike more robust as a car alternative:

> Nikki: Having pannier bags makes a really big difference to me – for work but also for everything else. I can […] be like, "Oh, I wasn't planning to shop" […] [It] totally changes the way I use the bike […] and because they've got quite a decent amount of capacity with two of them I can actually get quite a lot of stuff before I can kind of justify going, "Oh, I have to take the car because I've got too much stuff."

Marty, who also worked in a bike shop, related a similar story of the carrying capacity of a customer's bike affecting its ability to replace the car:

> Marty [bike retailer]: I know one lady, she spent hundreds of dollars on panniers, waterproof panniers. I mean she spent probably 4 or 500 bucks, and that was because she used them

> for everything. It was her shopping bike. It was her car. So it was kitted out so she could use it *exactly* for that purpose. So she could ride to work with everything in the panniers.

Jane also had two very large panniers included with her new electric bike, which made the bike much more versatile for her, as well as easier to pack and unpack. Generally, the larger the carrying capacity, the more flexible the bike was as a transport option and less planning and preparation was required and less juggling of what could be carried.

A gendered pattern also emerged with respect to carrying capacity. Of the 11 women interviewed, 7 of them had gone to some lengths to equip their bikes for a larger carrying capacity, with large panniers, baskets or boxes in the manner described above. Of the men, only one had put a front tray on his bike, and that was only used for a fairly small bag, and one of the men at the free cycle repair workshop targeting low-income areas had a bike with front and rear carrier racks equipped for panniers. This seems to relate to the different trends in men's and women's bikes, evident in Figure 26 on p. 145, where men's bikes tend toward the stripped down and minimalist 'fixie', retro racing type bike, while 'women's' bikes tend to be more set up for utility with baskets, rear carriers and mudguards. Stefan's description of a pannier too small for his wife reflects some of the differences in expectation of who will need to carry what:

> Stefan: This [pannier bag], this one was originally for my wife but it was not big enough for her, but it's kind of ideal for me for work stuff, so it doesn't need to carry much. […] So, she needed something bigger for the groceries and it was perfect for *me*.

One challenge that emerges when having a larger carrying capacity on the bike is the security of those items when making multiple stops, which can mean having to carry items from the previous stops with you: "[It] is a bit of a hassle – is when you go […] to the mall, then I have to take everything off my bike with me [into the mall]" [Lauren]. Again, however, the right equipment can make a difference, such as removable bags:

> Lauren: Except I've now got a *pannier* […] and already today I called into the podiatrist on the way to work, um, and I just took it off and it's a little bit stylish […] because other times I'm going in and I'm carrying bags and I feel like a bag lady, you know. [Laughs]

Because the pannier was stylish enough to pass as a large handbag or shoulder bag, she could easily remove it and carry it into a new destination. However, this would not help with the weight or inconvenience of heavier loads in multiple bags. Some people simply left things on the bike anyway, and had not had anything stolen, but that is a risk others were not willing to take. Lauren also sells bike accessories and had looked at the possibility of lockable storage on bikes, however the mechanism did not work well in practice. So, while carrying capacity can be increased quite easily,

security of those items on an unattended bike remains a challenge, limiting the feasibility of making multiple stops (trip chaining) with a larger load.

As mentioned in the previous section, commuting by bike was a lot more predictable and controllable, so that the load would be consistent from day to day and any variations easier to plan for.

> Dave: [My bike has] nothing that will support anything being carried on it. But I just take a backpack. It's usually got my lunch and my work clothes in it.

> Marty: I basically have a change of clothes at work, um, and I have work shoes at work. […] [I] carry everything in a backpack […] my lunch, um… my wallet, my phone, water bottle. Just general. […] If I'm taking stuff to work, I'll chuck it all in my bag. If it's too big, I'll chuck it all in the car and ask [wife's name] to drop it off later on when she's doing her rounds.

As seen in the street observations, the most common means of carrying items was a backpack. This is a versatile and flexible way of carrying things, however, it can be impractical for everyday cycling. Its main limitation, mentioned by several interviewees, is that it can result in a sweaty back with only moderate exertion, even when the rest of the body is relatively cool. This can be unappealing when cycling in everyday clothing, leaving a wet mark and creasing clothing, and, as demonstrated by Nikki, could be a sufficient showstopper for some on its own:

> Nikki: [Having that carrying capacity on the bike itself] totally changes the way I use the bike. I would not bike to work if I didn't have that, because I refuse to wear a backpack to work, and also, I end up with quite a lot of weight. […] I don't want to get to work with sore, sweaty shoulders […] but I don't think about it when it's on my panniers.

A few of the more intrepid cyclists would also do their main grocery shopping by bike, especially if they had a cargo bike or large pannier bags. However, most would only use the bike to pick up a few items and would use the car for the major weekly shopping trip, often when they were already using the car for something else. The fact that even keen cyclists used their cars for grocery shopping suggests that the car is much better suited to the job than the bike. Those who did carry larger loads by bike reported some challenges with this, especially having to be very careful not to buy more than could be carried. Rajesh, who did not have a car, found that he had to shop every day:

> Rajesh: I go for grocery shopping almost every single day. The thing is, I can take whatever holds in my backpack that you have seen. So, what I have to consider is, you know, whatever I need I need to plan maybe one or two days earlier, because I can take only this much amount of stuff on my bike and in my bag.

So, although the carrying capacity of the bike is very limited in comparison to the car, with good use of well-designed removable pannier bags, this can be increased to accommodate a much larger range of everyday travel scenarios. It is especially useful when it allows for occasional items such as rainwear

or puncture repair kits to be regularly carried and when it leaves spare capacity for unexpected loads. In this way, good carrying capacity can be one of the most effective ways to increase the utility of the bike for everyday use.

Children and passengers

In the previous chapter, the impact of the need to carry passengers, especially children, was also a significant potential barrier to utility cycling. As a type of 'load', a passenger, other than a small child, is too large to transport on a standard bike. Smaller children of preschool age can be carried on a bike seat on a regular bike or older children in a cargo bike or bike trailer, but weight can quickly become an issue for the rider with older children and specialised bikes are expensive. Children can also ride their own bikes alongside a parent. However, as Table 6 on p. 110 shows from the Household Travel Survey, only 0.4% of household trips by bike in Christchurch involved a child accompanying an adult by bike, so such trips are not common – this amounted to only 27 trips out of 1800 household cycling trips surveyed and 54,000 household trips overall.

One way of transporting children by bike is to buy a cargo bike or trailer which has the carrying capacity for passengers. Ana and Will own a cargo bike together which they imported from Australia, primarily for transporting their children – a 'bakfiets' style bike which is a two-wheeled bike with a large box on the front – because they wanted to be able to continue cycling even with two small children. The bike gets a lot of attention – "I feel like a travelling sideshow riding it around! Mostly it's really good attention. People kind of really like it." [Ana] – which can be distracting and a little embarrassing for the children. Some people also seem to "imply that it's not a very safe thing to be doing with your children" [Ana]. She used to have a bike seat on a regular bike, but her son was getting too big for that, and she liked that she could talk to the children when they are in the front of the bike. She did note, however, that with her older daughter now eight years old, that with both of them and a load of groceries, the weight was starting to become a challenge. Karen also transported two of her children, but in a trailer behind her bike. She also noted the extra effort required, especially on a slope or into a strong headwind. Both women reporting times when they had to get off and push in such circumstances. So, while these bikes were capable of carrying children, the effective range was reduced due to the size, weight and additional exposure to the wind.

Another option, possible as the children get older, is to accompany them on their own bikes as a way of building their confidence and skills to ride alone at some point. Nikki (who has "always biked to school") and Chris would accompany their children to school in this way – a distance of 1.5 km. The

children would either walk, ride small kick scooters or ride their bikes, suggesting that the speed would be relatively slow, but could amount to some distance. Nikki was really proud of her young son's stamina:

> Nikki: Our youngest has been biking since he was 3½. So he and I would bike together. […] When he started riding we would bike to school, which is a k and a half, and we'd ride up the road to kindy […] and he'd bike home from kindy and then he biked back to school in the afternoon and then he biked back home again. So some days he was doing like seven k's on a bike at 3½. Little tacker!

Accessories can assist in accompanying children on their own bike. Karen also had a device called a Trailgater that attached her daughter's bike to the rear of her own bike, lifting the front wheel off the ground, allowing her daughter to also ride behind her, while Karen has full control over the bike.

There was also some planning and coordination required to accompany the children to school. Nikki and Chris shared the responsibility for this – Chris taking them on the days that Nikki worked. If Chris was unable to do this on a day she was working, or if it were raining, she had to take them in the car because she did not have time to do that and still get to work on time.

As children get a little older, they are able to cycle on their own. Alan's older son, aged 12 or 13, cycled a short distance to intermediate school and the school was quite supportive of cycling, even providing traffic directions for students based on the direction they are coming toward the school from. When asked if he was happy for his children to cycle, he was a little hesitant. He noted that some of the junctions near the school are quite dangerous ("It's probably more dangerous than anything I'm doing, trying to get to [that school] actually." [Laughs]. [Alan]), but he felt generally that the local roads were safe and that it gave his older son freedom to just begin to go places on his own. He would always accompany his younger son, though, riding in front of him on the road (not on the footpath). Karen was also letting her children begin to ride on their own at about the same age as Alan's older son. The rate of secondary school aged children cycling to school nationally, however, has fallen significantly from 19% in 1990 to 3% by 2014 (Ministry of Transport, 2015a, p. 31).

Although many of the interviewees encouraged their children to cycle, some of the older teenaged children found it very 'uncool' to follow their parents' example. Karen noted that her oldest son found it "uncool" and that none of his friends cycled: "He is a completely lost cause anyway. He doesn't do anything that I suggest." [Karen]. Even Katie's passion had not passed on to her daughter:

> Katie: But, my enthusiasm for biking has not worked on my daughter, because I used to pick her up from school and I'd make her bike to wherever she went – be it karate or dancing – and she *hated* it, and she still does. And it's really sad. She did bike in Holland when we took

> her to Holland. […] She does not like the helmets – and I think a lot of kids don't think helmets are very cool. […] Here, it's, oh, you're a bit of a dick.

Stefan and his wife, however, have been deterred from letting their children bike to school. In Germany, they used to use a bike trailer for the children, but in New Zealand they use the car for that. His wife reported knowing three people since coming to New Zealand who had been hit by a car on a bike and as a result she was "way more hesitant to send my kids to school by bike", like other parents, despite that having been very common in Germany. She noted as well that riding small kick scooters to school was rare in Germany, but very common in New Zealand, meaning that children would not be exposed to cycling until they were much older.

These stories show that it is possible to transport children by bike, especially when they are old enough to cycle on their own, however, there are currently a number of challenges with younger children. In Copenhagen, cargo bikes are common for transporting children (Colville-Andersen, 2018). 25% of all families with two or more children own a cargo bike and, of the cargo bike owners, 30% so that it replaces a car (City of Copenhagen, 2017, p. 5). This, again, shows that it is possible to significantly increase the utility of the bike with the right equipment. The rapid fall in the number of schoolchildren cycling to school also shows potential for improvement. However, with only 0.4% of trips with adults and children being conducted by bike (Table 6, p. 110), there is very little cultural precedent from which to build such a practice.

Physical challenges – managing clothing, exposure to weather, body heat and personal hygiene

The body is an important part of any practice, but especially cycling, which is distinguished to a large extent by the fact that the human body provides the motive power, and, as we saw in the previous chapter, the physical exertion required can be a challenge to cycling. For everyday cyclists, this manifests primarily in terms of managing body heat – and the ramifications for clothing, showering and personal hygiene that go with that – or in terms of exposure to weather, especially wet weather.

There were two main approaches taken to managing clothing and body heat: to wear different cycling or exercise clothing while riding the bike and possibly shower afterwards, or to simply ride in normal, everyday clothing. Those who adopt the former approach tend to be commuters, especially sports commuters[27], because it requires a destination where one can change clothes and possibly shower

[27] Cycle commuters who also cycle recreationally for sport or fitness at the weekend.

on arrival. As recently constructed buildings, all of the new central city office buildings involved in the travel planning exercise were required to provide showers, lockers and bike parking to facilitate and encourage this style of cycle commuting, and some of the interviewees had these facilities available in their workplaces as well.

This type of arrangement could introduce complexities though, because clothing would have to be carried into work, such as an ironed shirt, but items such as shoes and trousers would have to be kept at work and refreshed as needed. For Tom, this became more complicated if there was a change in his working pattern and he needed to work at a different location and had to remember to bring clothes home with him:

> Tom: I do keep my trousers here. So, there is quite good hangers and stuff here, so I leave a pair of trousers and my work shoes in there. The difficulty is if, say, I'm at a meeting offsite tomorrow, is going, "Oh, I need to take all this sort of stuff home." So, then the backpack can get a bit expanded with gear taken back and forth.

With this logistical complexity, forgetting an item of clothing could be difficult or embarrassing: "It's happened! Like spending the whole day in leggings! [Claire].

Carrying capacity limits could also limit clothing options:

> Miles: I'm more limited in my clothes that I can wear when I'm coming on the bike. So, I basically take a smart set of pants, shirt, ah, maybe an undershirt, sometimes a light sweater, ah, but, um, not if I've got to wear a jacket or a tie or anything like that, [...] [or if I] need a more heavy jacket and that's something that I actually can't bring on the bike because I get too hot if I'm wearing it when I'm biking and it's too bulky to put in the bag.

For some, cycling in normal clothing was quite straightforward if their workplace allowed more casual clothing because they could just ride in shorts if needed and getting hot or wet would not have such a serious impact. In more formal settings, though, this could be a problem. Katie, who normally cycles in smart but not formal clothing, demonstrated the impact of more formal expectations of appearance when she cycled to a funeral:

> Katie: Sometimes I do sort of arrive somewhere [...] and you do think, "Oh my God! I'm absolutely drenched in sweat." And I did go to a funeral once, and I went on the bike to the funeral, and I thought, "Oh, it feels horrible when you're all sort of dripping in sweat." So, I thought, I should really drive to the funeral next time!

Tolerating occasionally getting hot and sweaty or wet from the rain seemed to be something that the everyday cyclists were prepared to accept from time to time, but as with Katie, it could be awkward for others in certain settings: "I do sometimes feel a bit dishevelled and [...] it was that sort of turning up

in a sweaty mess and trying to look better than I felt" [Jane]. In a similar way, when Alan described others thinking he was "crazy" to cycle, he referred to clothing limitations related to potentially getting hot or getting wet as a possible reason for that opinion.

This explains an apparent assumption among many that one has to wear special clothing to cycle and to possibly have a shower. When Tom used to drive to the office, even though it was only two minutes away, he remarked, "I'm not getting changed here to cycle for two minutes, to get changed and possibly have a shower" [Tom], apparently without considering the possibility of cycling the short distance in regular clothes. As a recreational cyclist on the weekend, this seems to indicate his perception of cycling as primarily a sport or form of exercise that requires a change in attire. Clearly, in cycling cities like Amsterdam and Copenhagen, this is not the case as almost all appear to ride in typical clothing, but it may be that they manage body heat by riding at a more relaxed pace – another distinguishing factor from cycling for sport. Sarah noted that riding more slowly could help to keep body heat in check: "Sometimes I won't go as fast as I could because I don't want to get hot and sweaty." [Sarah].

Another aspect that affects appearance is cycle helmets, especially in New Zealand and Australia, where they are compulsory. Opinions were mixed about this controversial topic, with some strongly in favour of the law on safety grounds and others firmly against it as it reduces the numbers cycling, thereby reducing the safety in numbers. In terms of clothing and appearance, this could be a problem, especially for some of the women, where issues of personal presentation and grooming may not be trivial.

> Lauren: People say, [in whiny voice] "Well, you shouldn't worry about your hair," and you know, all that sort. But anything that's a psychological barrier that's to stop people cycling it makes it harder.

This was supported by a single travel planning survey respondent: "A solution to 'helmet hair' would go a long way towards getting me on a bike...". Given that all interviewees cycled regularly, they all had clearly found an acceptable solution, but one interviewee with a particularly bulky hairstyle found the helmet very difficult and another faced challenges which others, who are less enthusiastic about cycling, may not persevere with:

> Nikki: [Helmets and hairstyles] is probably my biggest actual bugbear, is that I have to do my hair when I get to work. [...] So, I just tend to just pull it back up into a ponytail. [...] But I can't wear it up under my helmet.

The final embodied aspect was exposure to the weather, especially wet weather. Although some found the cold distressing, most found that it was not a problem. Rain could be more challenging,

however. Several mentioned times when they had been caught in wet weather, which, although relatively rare in Christchurch, could be inconvenient or uncomfortable: "If you've got soggy shoes at work then that's horrible" [Emma]. Again, the formality of the destination in terms of appearance would influence how tolerable such a situation might be. Getting hot and sweaty or wet in the rain may be relatively easy to tolerate when riding to sports practice or going to the supermarket, but in a formal work setting or event, the implications of a mishap may be more serious and may make cycling more challenging – or require carrying a change of clothes. Some would always carry wet weather gear with them, if they had the space, but others would have to rely on weather forecasts, risking being caught out:

> Alan: Like today, was a rain jacket. I didn't take one on Friday. I wish I had. I got absolutely sopping wet. I took one today. I didn't wear it, but I could have done, but it was hot.

So, the physicality of cycling clearly has implications for the practice. The exertion required can lead to challenges with clothing and avoiding excessive sweat. This can be managed in Christchurch by regulating cycling pace, given the flat nature of the terrain, but longer distances, headwinds, hills or simply running late could all hamper that. At the same time, the exposure of the rider to the elements can lead to difficulties in bad weather. In both cases, the standard of attire expected at the destination made a difference. However, as the images of cycling in Amsterdam and Copenhagen clearly illustrated, these issues can be managed while wearing regular, everyday clothes.

Summary

What this section has aimed to make evident is that the limitations inherent in cycling mean that more conscious deliberation of logistics is required before setting out to ensure, or check, that those limits will not be exceeded. Because the car is over-engineered for most trips, provided a car park is available, it is capable of easily meeting the requirements of most trips with little thought (and if not, alternatives are not readily available). A number of the regular cyclists noted their surprise at how easy it was to get in a car when used to the bike: simply grab your things and go, confident that the car will be able to handle unexpected weather, loads, passengers, distances, etc. and that they would arrive looking the same as when they departed. A trip on a bike, on the other hand, could involve being caught out in bad weather, too hot or with an unexpected load, all of which demands more preparation and consideration. This has a significant impact on the relative utility of the bike to the car and other modes in many circumstances.

An important implication of these logistical challenges was that it also meant that utility cycling required a lot of cognitive attention and planning by most of the participants. Utility cyclists had to be very aware of the details of their practice, meaning that it was less likely to become prereflexive, automatic or habitual (or, if so, in different ways to most practices). This was also experienced in the travel planning programme, where many participants were eager to find out more about their transport options, however, the regular cyclists had usually already considered their options and worked out what they were going to do and how.

All of these logistical challenges, though, as demonstrated, could be significantly mitigated by the right bike and accessories, the right clothing (especially wet weather clothing) and by riding at a more sedate pace. As demonstrated by the cases of Amsterdam and Copenhagen, such measures can increase the share of trips they can be made by bike, however, this would require a fairly significant change in cycling culture in Christchurch, as evident in the earlier pictures.

5.3.2 Type of bike and equipment

The material configuration of the bike and its accessories can go some way to addressing some of the logistical challenges of everyday cycling mentioned above. With the exception of specialised bikes, like cargo bikes and electric bikes, changes in configuration do not dramatically change the overall capability of cycling as a mode of transport, but a well configured bike can make a bike work as well as it possibly can, removing some of the many small annoyances and challenges that may hamper a bike that is simply recreational bike drafted for transport duties. A consideration of style can mean that form and functionality can also work together, meaning that utility cycling can work well aesthetically as well as practically.

Type and configuration of bike

The most obvious material aspect of cycling, along with roads and cycling infrastructure, is the bike itself, and the equipment that goes with it. As we have seen in the street observations and in some of the preceding sections, the bikes and equipment used by the majority of Christchurch utility cyclists are not particularly well suited to cycling for transport. Most bikes are simply two wheels, a frame and a seat, to which everything required for everyday transport has to be added: carrier racks, bags, baskets, lights, mudguards, chain guards, locks, etc. The frame is often a step-over design with a head-forward posture, designed for speed and performance, but which is more uncomfortable for everyday cycling, with less visibility than a more upright posture.

Several of the interviewees had European-style upright bikes, like in the Amsterdam pictures (Figure 28, p. 146). These usually have the carrier rack, mudguards, chain guards, and even skirt guards, fitted from the outset, possibly also with a front-mounted basket, permanently attached lights powered by a dynamo, or a 'café' style lock attached to the back wheel. All of these features help to overcome some of the challenges mentioned in previous sections, such as forgetting lights or locks or restricted carrying capacity. The upright riding position is more comfortable and affords better visibility and awareness of one's surroundings. This type of bike also lends itself to lower cycling speeds and a more relaxed style of cycling.

However, retail bike shops in New Zealand tend to promote more sports and recreationally oriented bikes. Lauren described a situation where the wrong type of bike was putting her off cycling:

> Lauren: I didn't put it down to, "I've got a sweaty back," I put it down to, "I'm just lazy that am not taking the bike," you know. But it was all these things that were making biking unpleasant for me, you know: sweaty back, […] I don't know that I was really enjoying it.

Aesthetics

Aesthetics and functionality could also go together. Lauren noted earlier that having a stylish, removable pannier bag that was acceptable as a handbag made it much easier for her to carry things with her from her bike, without appearing like a "bag lady" having to carry multiple items. Such a bag might have worked well for Sarah, who struggled with packing and unpacking non-removable panniers. Several of the women, Sarah included, however, reported difficulty in finding such bags in cycle shops (which led Lauren to start a business importing them). Aesthetics can also help the appeal of compulsory helmets by making them a personal style statement for some. Lauren, who also sold bike accessories, noted strong sales of bolder or more stylish helmets, mostly to women, on the logic that "if I'm going to have to wear a helmet I'm going to wear something a little bit nicer" [Lauren]. The overall result of more aesthetically pleasing cycling, as opposed to the more technical style prevalent in Christchurch, could also be a wider appeal of cycling:

> Lauren: If you suddenly saw whole lots of women in skirts and dresses and men with their business suits or whatever, biking to work or whatever, […]I think a few people would look at that thinking, "That could be me."

Aesthetics could also hinder the practical utility of bikes, however. The style of the more practical, upright bikes may not be to all tastes, especially for men who prefer a more minimalist style of bike as seen in the images earlier.

Specialised bikes – electric bikes, cargo bikes and bike trailers

Among the interviewees were several electric bikes (or e-bikes), a couple of cargo bikes and a bike trailer. These specialist types of bikes can significantly increase the capability of the bike to overcome many of the challenges mentioned so far, however, they do also have some downsides – most notably cost. Lauren, who had access to a number of bikes, including a cargo bike and an electric bike, noted that each could replace a previous reason for switching to car:

> Lauren: The rare times I do bring a car to work is when I'm transporting stuff, a bit more than… but now that I have a cargo bike I don't know that I would necessarily have that… or perhaps if I wanted to go from here […] quite quickly across town at a particular time to get there, but now I've got the electric bike, so that should, you know, kind of cover that, really.

The additional power, speed and range of electric bikes, which are becoming increasingly popular, help to overcome many of the challenges of cycling that relate to physical exertion, especially distance, hills, headwinds and getting too hot. The electric assistance perhaps doubles the comfortable range of an e-bike. Jane, a highly committed rider who was riding more than 20 km a day with a hill at the end of the ride, had found the physical effort increasingly tiring, to the extent that she often lacked energy for household chores in the evening. The electric bike transformed that experience to the extent that she would now sometimes make two trips per day into town, whereas previously she would only have had the energy for one. Another advantage is that the rider can stay cooler. Stefan reported that he would sweat very easily on a bike over even medium distances, so his e-bike allowed him to commute in his work clothing. This could also have a negative effect, as noted by Katie, of sometimes reducing the health benefit of the exercise attained by too great an extent. Speed being misjudged by drivers and security of the more valuable bike were two other issues, but overall, electric bikes can significantly extend the capability and suitability of the bike for a broader range of trips.

The benefits of a cargo bike or a bike trailer for transporting children were mentioned earlier, and this appears to be their primary use (especially in Europe). They can also be used for carrying larger loads, and Ana reported that she could quite easily carry a large load of groceries. Her partner Will noted, however, that the ride could be a little bouncy and harsh for more delicate loads. These bikes begin to become almost car-like in their capability, however, they do also have downsides of significant purchase cost, up to several thousand New Zealand dollars, space required for storage at home and the effort required by the rider, being very susceptible to slopes and headwinds. Electric cargo bikes are also available, but these are even more expensive.

5.3.3 Vulnerability and safety

The perceptions of cycling being unsafe that emerged from the travel planning data are not allayed by the interviews. Although the perceived level of safety, or 'confidence', varied a little from person to person, almost every regular cyclist interviewed reported having to be highly vigilant on the bike. For example:

> Dave: I'm biking on Lincoln Road and conscious of how dense the traffic is around there. […] I guess I'm totally used to it, but… ah… just sometimes it gets a bit tiring having to constantly be on alert.

This was a typical experience. Even in the same breath as describing cycling as "meditative", Karen noted that "I've still got two eyes going, 'Where are the cars?'". Most would describe frequently having some kind of incident, such as being cut off or having to take evasive action, and some had had near misses and accidents.

There was an overall sense of a lack of care from other road users for cyclists: "Yeah, they don't really seem to care. I have to keep my… I have to be really really on top of it when I'm cycling just to make sure" [Karen]. Many described angry or rude exchanges with impatient drivers, especially if they had to wait behind a cyclist (while also noting though that most were patient and considerate). This contrasted quite sharply with many of the accounts of cycling in Europe, where drivers appear to be much more patient with cyclists:

> Emma: There's just a general perception in Europe about sort of looking after the people who are smaller and slower than you. So there's a lot more care taken at intersections and pedestrian crossings and people don't seem to be in quite so much of a rush in the cities.

If utility cycling is to become more common in Christchurch, car drivers will have to learn how to drive more carefully and considerately around bikes. Changes to road rules and liability may help this, but also increasing numbers will change practices. Robert Fleming (2018), writing in a local cycling blog, noted that already on a busy shared pedestrian cycle path in South Hagley Park, on week days, when pedestrians are used to bikes, they keep to the left to allow passing (but this does not happen on weekends). This shows that practices can quickly result, out of necessity, when a certain frequency threshold is reached – an accommodation for cyclists that could easily occur amongst drivers on the roads as well.

From a material perspective, in recent years, Christchurch has had a dramatic increase in spending on cycling infrastructure, due to a one-off central government funding programme. Only a small number of projects had been completed at the time of the interviews, but some interviewees were able to

comment on the separated cycleways and dedicated infrastructure that had been completed. Some noted that it gave cycling a sense of legitimacy, as if it were a valid mode of transport rather than simply being left to negotiate among cars:

> Claire: I think it gives you a feeling of… you feel a bit more like you have a right to be there when you're on the road.
>
> Sarah: You just feel so much safer. And you kind of feel like you've got some rights, as well, like someone is looking after you. […] It's just like you're, like sometimes you're at the bottom of the food chain, because you are so vulnerable in the main traffic.

The result was a sense of being able to relax the constant vigilance required on the road because someone had paid attention to the needs of bikes in the design: "It means you can relax a little bit – you don't have to be quite so much on-guard" [Claire]. The result of this was that, "It just makes you think… that maybe they actually care" [Claire]. The bike-sensing traffic lights, which automatically changed as a bike approached were also very popular: "I get a buzz out of that" [Alan], "I think they are really impressive, the ones that change as you are approaching" [Claire]. The general impression from the cyclists was that they felt somewhat forgotten and "at the bottom of the food chain" [Sarah] and therefore having to fight for their piece of the road, which required constant hyper-attention and some confidence. This kind of cycling-specific infrastructure legitimated their place on the road, while at the same time providing the feeling that they were in a safe space designed for their needs. The few experiences related imparted a sense of a very different style of cycling.

Although the interviewees were all experienced cyclists, their comments suggest that safety is still a significant issue and that any attempts to provide dedicated infrastructure for cyclists are likely to go a long way in shifting the utility of everyday transport further in favour of the bike.

5.3.4 Personal benefits of cycling

The first of the themes that emerged primarily from the individual memos of each interview was the personal benefits of cycling, which could involve more complex arrangements of factors. Almost all of the interview participants noted that they personally enjoyed the act of cycling in some way, beyond higher-level, pragmatic or values-based considerations (which will be discussed later). Each enjoyed their own combination of factors, such as being active, feeling freedom and relaxation on the bike, being more energised and being more connected to nature and community. Often this enjoyment of cycling coincided with a dislike of driving or frustration with it, usually due to the absence of these attributes when in a car.

The single most common benefit, mentioned by almost every interviewee, was the health benefits of getting some exercise or at least physical activity:

> Lauren: My husband and I look at each other and think, well were getting a bit of exercise pretty much every day. Not that we are going hard out, but it's still apparently good for you.
>
> Karen: It was part of my fitness regime, and it still is, um… that's why I keep cycling. That's part of life now.
>
> Chris: Yeah it's great. I love it. Yeah, it's really good. It's a great way of getting around, easy, it's fit, you know, active. […] I like the fact that it's active and that's what biking is about.

A key benefit was that they were able to get exercise at the same time as travelling – doing two things at once and thereby saving time required for separate exercise: "It kills two birds with one stone. It helps you to stay fit and healthy. […] You're transporting yourself *and* you're staying fit" [Sarah]. This was especially valuable to Chris, who confessed to not liking exercise generally, so 30 km of cycling a week for him while commuting was a significant side-benefit. For the sport commuters, who showered upon arrival at work, the bike ride was a chance to get some intentional fitness training in. Brett used a fitness app and enjoyed challenging himself to improve his times: "It's quite good sort of flicking back through and sort of seeing how my times have improved and stuff" [Brett].

This active quality of cycling was also connected to a general sense of wellbeing and being energised and refreshed by riding the bike. Tom noted feeling "kind of awake instantly" with even a 12 minute ride being "just enough to wake you up and you kind of feel like you're ready for work. [..] You kind of feel it starts your day off" [Tom]. Emma noticed that she would have more energy, taking the stairs when arriving by bike, but the elevator when travelling by bus. Claire even found that she struggled to sleep if she did not cycle, noticing that she would start to get "terribly fidgety".

Cycling was also seen as a way to unwind and reduce stress at the end of the day and therefore as a valuable transition between spaces, especially work and home. For Marty, a 15 minute ride was a good "wind down" before facing "the horde" of children: "it's a nice wee present where you can just de-stress I suppose, or just re-evaluate" [Marty]. In a similar way, Alan valued "that headspace thing. […] It takes me longer and I've got to work for it, so I've actually processed a lot of stuff by the time I get home". That time to himself would allow him a transition from dealing with children all day at work to be "not so grumpy" when dealing with his own children at home. Karen found cycling "very meditative":

> Karen: … and therefore it relaxes me. […] I can think of lots of… getting lots of issues sorted in my head, which is one of the reasons I used to cycle when I was very busy at work.

A number of people also reported a closer connection to the places they were travelling through on a bike relative to the car. Claire liked the "fresh air" and going through the park. The bike allowed people to feel closer to pleasant environments:

> Judy: Biking through a park on the way to work in the morning is very different from sitting on the road all the way into work in traffic, and that creates quite a different feeling.

And some just enjoyed the intensity of being in the outdoors and the closeness to nature: "You're kind of out there in the weather and you're kind of experiencing the day a bit more than you are when you're sort of sealed inside a car" [Ana]. For Sarah, this resulted in

> Sarah: […] a sense of being connected with where I am. So, connected to nature and being more present. I like the fact that […] I actually know, if it's a hot day, I feel hot and, if it's cold day, I feel cold, and if it's wet, I get wet. […] A sense of being part of something bigger.

There was also an increased connection to the community on a bike, through the ability to interact with others when on a bike. This could mean taking advantage of chance encounters: "if you do see someone, you can say, 'Hi,' and stop on the side of the road and have a yarn" [Marty], or simply "being able to smile at other people" [Jane]. The experience was generally more social as well as noticing more of what is happening in the community. Judy noticed "the different way you relate to the city on a bike – finding different places to go, different routes, parks to go through, ways to get places, discovering things I would never see in a car" [Judy].

> Emma: I definitely notice things. […] It's quite good and it's just seeing what's changing in the city and spotting, you know, shops or galleries or whatever going up.

Combinations of all of the factors mentioned led to most of the participants simply enjoying the overall experience of cycling: "Actually, bike make me very happy. Like, I feel very happy. I feel very independent and feel natural, like it's kind of exercise" [Sunil], "I really like biking. I feel really positive about it and I always feel really good about myself if I've chosen to bike instead of drive" [Nikki]. Lauren, when asked to complete the sentence, "Biking is…" at an event, simply wrote:

> Lauren: "Fun." I just enjoy it, you know. We find, if we do have to take the car for two or three days for some reason or something, my husband says, "Ooooh, can't wait till tomorrow, when I can take my bike," you know. So, I don't know whether we are odd or that's what most people…

Will and Jane expressed well how the whole range of positive factors described would combine with each other, as well as some of the values described in the next section, to create a sense of overall enjoyment:

> Will: I enjoy riding a bike. […] I enjoy *not* driving a car as well. Not that I don't like driving a car, but I like *not* driving a car. I find, like, not being confined by the traffic of cars a good thing. […] I like being able to go past a line of cars. I enjoy the freedom of a bike. I like being able to have more contact with the world that I'm passing through. I, yeah, I think it's really good not having to use petrol to get everywhere. I think there is an environmental component, but, I think it's good, I enjoy using my body, you know, to… Like, I think it's good exercise, I guess.
>
> Jane: I really like the physicality of it. I really like the speed, being able to get round the traffic on it. I like the flexibility. I like the parking. I like the convenience. I like the social side of it, being able to, you know, interact with people as you bike past.

This enjoyment of cycling could also coincide with a corresponding dislike of driving, where these positives could contrast starkly with aspects of driving. This especially applied to heavy traffic ("You get stuck in a car sitting behind someone, it drives you mental" [Marty]), where cyclists would be frustrated when in a car for not being able to simply ride though the traffic: "So I get frustrated. If I'm in a car, it feels wrong. […] I mean if the road is blocked and I'm on my bike […] I've got much more freedom to negotiate those" [Sarah]. The result could be the opposite of the stress relief of cycling:

> Jane: I went […] in the car the other day because I had a sound system I had to take back and I just, it took me longer than it would have taken me to go there on the bike, ah, and I was so angry by the time… [Laughs]. I just thought, why does anybody do this by choice, you know. It's just *not* fun. [Laughs]. It's *very* frustrating.

This general enjoyment of cycling reported by regular cyclists is also an important part of promoting utility cycling to replace trips by car. It shows that when the functional factors emphasised in the previous chapter can be kept further in favour of the bike, that the experience is appealing to many, which may help to sustain the practice over time.

The relative importance and mix of each of these personal benefits of cycling would vary by person – and they would also play a part in their overall motivation, which will be considered in the next section.

5.3.5 Type of cyclist 1: Commitment and motivation

The interviewees could be split down the middle into two roughly equal groups: one group could be described as 'conviction cyclists' – people who cycled due to a strong belief in the environmental and social value of cycling – and the other as 'pragmatic cyclists' – those who cycled because it worked well for them in terms of parking, travel time, cost saving, convenience, etc., or because they had to for economic reasons. The conviction cyclists were more likely to persevere through inconveniences and challenges, and all were general-purpose cyclists (as opposed to commuters only). The pragmatic

group were mostly commuters-only, plus a few general-purpose cyclists who really enjoyed and valued the exercise and freedom of cycling, but not so much for environmental or social reasons, and one who could not afford a car.

The conviction cyclists demonstrated that cycling for transport was something that aligned with their values. These values involved a mix of environmental, community and health concerns: they liked the low carbon footprint of cycling, the impact of reduced car volumes on the community, as well as the value of being active, independent and outdoors.

> Sarah: I just think I should be biking because it's the better moral thing to do, rather than being lazy and taking the car, using petrol, not getting exercise, clogging up the roads.
>
> Alan: If I look at the people that cycle at work, it's sort of an awareness of [...] they're into health... and community. Like, [male colleague] is particularly sort of, um... into green stuff and, I don't know, environment and saving energy. All that kind of stuff – and health. [...] I think it promotes a certain value. I'm not sure what the value is.
>
> Nikki: Then the environmental factor. [...] I just felt like we are really contributing in a way that lines up with our values. Because sometimes our values and our actions don't quite meet when we'd like them to. So I feel like, for me, the more I bike the better I feel about my own impact on the environment.

These values were not always clearly stated or distinguished and were often more just a sense of cycling being 'a good thing to do'. For example, Jane, who has very strong environmental values, did not think to mention the environmental aspect of her cycling practice until prompted, late in the interview. There was a sense almost of a taken-for-granted rightness to cycling that may not always have been conscious enough to be readily articulated.

The strength of such values was especially apparent when cycling parents expressed a keenness to pass them on to their children:

> Ana: Like, particularly with the kids, I do really want them to see that that's a really good way to get around. Like especially just for short travel. That you know we have got the means to get ourself places and we don't have to hop in a car to do it.
>
> Nikki: I like the fact that our kids have been doing it from when they are young, so that's more of a normal for them. Like that's quite important to me. [...] I want them to see that and I want them to see it by example.

Generally in the conviction group there was a higher willingness to endure some of the difficulties and inconveniences of cycling – a kind of dogged commitment to their values. Judy represented this dynamic well. She had wanted to cycle for environmental reasons for a long time, but had lived too

far out of town. Moving closer to town and being unable to afford to repair her car finally pushed her into cycling, but she found it really difficult in terms of not eating enough, lacking energy and the distance restrictions that imposes, as well as the time taken and arriving places "feeling generally quite grotty". However, she persevered due to her convictions, admitting that without them and if she had had the money she would "absolutely" still be driving:

> Judy: So, I've started riding the bike. I forced myself into bike riding. So my car, um, […] I can't afford it. So, I took the battery out of it and I forced myself into bike riding, which hasn't always been, um, fun. [Laughs] […] I am someone that cares about climate change […] and it's like, well, if I really care about climate change and *I* find it really difficult, why the hell would anybody else, you know…

For Jane, a strongly committed cyclist, trips into town would be at least a 20 km round trip, with an uphill section at the end, and before she bought her electric bike, she found that so tiring that she would not have energy for housework, yet still persevered and preferred it as a mode of transport:

> Jane: [With the e-bike] I get home and I can still do the housework or do stuff, whereas [before that] I just got tired actually. And it was slow, and in a headwind, I'd slow right down on the other bike and I'd be going… Yeah, it would just take too long, and then you arrive and feel awful and really hot.

Pragmatic cyclists were those for whom cycling tended to work well and to simply be a better option than the car. For these people, it was the personal gains in terms of a combination of getting exercise while travelling, avoiding traffic congestion or car parking difficulties, cost savings or general convenience that made cycling attractive for them, rather than idealistic positions:

> Alan: I think it's […] probably more fitness [motivation]. I think, that green thing's hard, isn't it, because it's such a massive thing that my cycling doesn't really… well, it saves *me* money. […] I'm thinking about what it does for me, rather than what I'm doing for the environment. Because I'm not spending 80 bucks on fuel every fortnight.

> Stefan: It was not like, "OK, I don't want to kill polar bears," or something like that. It was just, I don't know, I obviously liked biking. […] It was quite expensive to have a second car as well. […] So, I'm not a religious biker for any reason, it's just practical.

Lack of cheap or free car parking close to the office was a major driver for the majority of this group, who were also commuters, to cycle, and when free car parking had been available in the past ("it was so easy and so tempting to use the car" [Emma]), many of them had driven to work:

> Tom: I think it was more probably pushed by the lack of parking here. We were spoiled at our last location, it was free parking. Ah, so, crazily enough, I actually live probably 2 km away from where I used to work and I used to drive.

> Brett: With the, um, move into town, um, you know, parking being expensive, um, bus is kind of expensive and inconvenient. So, yeah, it's just cycling is just the cheapest and most convenient, really.

Speed and predictability of travel times in traffic were also important. Several people noted that the bike was less sensitive to traffic and was able to ride past stationary traffic, making the travel time faster and more predictable. Being able to park the bike at work, avoiding looking for a car park, was important for Stefan, not only because it saved time, but it made the timing of the whole journey more predictable.

There was also a cost-saving motivation for many, especially for those unable to or finding it difficult to afford a car at the ICEcycles event: "People don't have much money around here, so it's cheap way of getting around" [Steve, event organiser]. Greg, an attendee at the event, noted that the bike saved money on "the rego, insurance, tyres, maintenance" involved with car ownership. But even for those with greater financial means, the cost saving was still attractive, in terms of parking, fuel or, more significantly, avoiding needing to own a second car: "It never crossed my mind to have a second car […]. It's just too expensive and I didn't feel like we need two cars" [Stefan]. For Alan, the idea of a second car was "ridiculous".

Exercise was slightly more valued by the practical group than the conviction group and in a slightly different way. The practical group tended to favour fitness, often in a more competitive or focused sense, whereas the conviction group was more likely to favour the health benefits of being more generically active and in the outdoors (although there were overlaps in both directions). Half of the practical group were the sports commuters (described in more detail in the next section): riding mostly because they enjoy cycling recreationally for exercise and, when parking and/or traffic is difficult, cycling actually turns out to be the easiest option for getting to work. These cyclists, while they enjoy cycling, are the ones more likely to return to driving if a car park were easily available.

There was also a subset of the pragmatic group who could be described as enthusiastically committed. For them the balance seemed to be tipped more towards their enjoyment of cycling, without necessarily the same level of environmental or social commitment as the conviction cyclists. They may still promote the idea of cycling to others, but it is because they enjoy it and love the benefits they experience. Katie was probably the most enthusiastic of all:

> Katie: It's the nicest thing. I'm just a total biking freak. I love it. I just think it's a really great [inaudible]. […] I like the exercise. I like the speed of it – there's no parking involved. No waiting around in queues. I like being able to look at things more. I like the fresh air. Just

> everything, really. […] And when people stop me, and maybe remark about a bike, I just find myself singing the praises of cycling.

These findings suggest that regular everyday cycling is practised by people who either have a strong social or environmental conviction about cycling, can't afford a car, particularly enjoy cycling, or are commuters with difficult car parking and value the exercise component – or a combination of all of those factors. Therefore, efforts that target the many factors identified in the previous chapter at a practical, everyday level of experience are likely to increase the appeal of utility cycling, but so too may efforts that creatively promote the personal and collective benefits of cycling – in a targeted manner, in order to minimise backlash from those who need to drive.

5.3.6 Type of cyclist 2: General purpose vs commuter

A distinction that quite quickly became apparent between interviewees was that there were some who endeavoured to cycle most places, as a full or partial car replacement, and those who only, or mostly only, use their bike for transport purposes to commute to work. The main difference between these two groups was the level of preparation and flexibility required from their cycling.

Commuter cycling was a simpler and more predictable form of utility cycling, where the route, destination, destination facilities and timing were all consistent. All of the seven interviewees in the commuter-only group were male and all had systems set up for getting to and from work. Six of them rode in exercise or cycling specific clothing and changed into work clothes when they arrived at work. They would carry a shirt in a backpack and have clothing stored at work and/or bring extra clothing in at times when using a car. What was carried could be carefully planned and minimised. Of those, three also rode recreationally on weekends and another used the commute as an exercise challenge (see "Sports commuter" below), but they only rode their bike to commute or for recreation – they used their car for all other trips. Exercise and car parking difficulties were the main motivators for these cyclists. The remaining people in this group were *mostly* commuters but would occasionally use the bike for short local trips, where it suited.

General-purpose cyclists were those that made an effort to use the bike as a general mode of transport, when appropriate, not just for commuting. This required a bike that was more suited to carrying things, possibly unexpectedly. Of the thirteen who made up this category, twelve had panniers, baskets or some other way of carrying loads on the bike itself, including two cargo bikes and one bike trailer. Emphasising the everyday nature of this type of cycling, all of them rode in

typical street clothing, suited to their destination. Interestingly, most of the people who rode in this way – ten of the thirteen – were women.

This group also included the two people unable to afford a car (see "Financially constrained cyclists" below) who only had the bus as an alternative mode. Many in the group of men spoken to at the ICEcycles event, who were of lower socioeconomic status, were also in this situation and their bikes were also set up with good carrying capacity.

5.3.7 Type of cyclist 3: Style

Of course, practical considerations are not the only component of the utility of utility cycling. As centuries of fashion have amply demonstrated, function and practicality may often be sacrificed in the interests of style. Any attempt to promote utility cycling that denies the vagaries of fashions and trends and desires for individual expressions of style, would be misguided. Among the interviewees themselves, and also from their observations of other cyclists, certain styles of cycling became apparent – 'style' partly in an aesthetic sense, but also in the manner of cycling. These are worth noting briefly as they reflect some of the texture and variation in the way cycling is engaged with. They include a 'feminine style' – often referred to as 'cycle chic' or 'Frocks on Bikes', a male minimalism and 'technical retro', sport commuter and financially constrained cycling.

The purpose of highlighting these different ways of expressing the practice of utility cycling is to show some of the texture in the practice. While utility cycling may be broadly called 'a' single practice at one level, it also consists of many different individual expressions, ultimately actually unique to each individual and each performance. It shows that cycling may require different forms to make sense to different people. A fully equipped bike with full mudguards, pannier bags, mirrors and a hi-viz vest may be highly practical and make sense for some, but for others a minimal, retro-styled racing bike (as in Figure 25, p. 144) may actually 'work' better because it is a personal style statement that is compatible with their identity. Utility, in this context, then extends beyond functional capability alone

and any attempts to promote or encourage cycling would need to allow space for this diversity and individuality to be expressed. [28]

Feminine style

As demonstrated in the street observations (see Figure 24 and Figure 26 on pp. 144, 145), one obvious style trend in utility cycling is the feminine, 'Frocks on Bikes' or 'cycle chic' look, consisting of a woman on a retro styled upright bike, a wicker basket on the front, stereotypically wearing a floral dress. A caricature would add a baguette and a small dog in the basket with a Parisian backdrop. Two of the interviewees specifically mentioned liking a "pretty", feminine style to their bike and accessories and another two also strongly favoured the more European style of upright cycling:

> Sarah: I like having the prettier European style bike and like it's more comfortable. It's actually more comfortable but I actually like the frocks on bikes look. I mean I wish I had the flowing hair and the French baguette sticking out of my basket and you know the flowing dress. […] I'm not into like technical biking and if I had a look that I wanted I wouldn't have those panniers. I wouldn't have those ugly panniers I would have pretty ones. […] I wouldn't be seen *dead* in Lycra.

> Nikki: I have basically a girlie bike. That's what I need - I want to be able to ride in a dress and I want a bell. […] I've got really nice floral panniers and I wear a homemade hi viz vest and I've got a pink helmet with little splotches all over it. […] I am not biking for sport at all [laughs]. I'm biking purely for transportation and, um, everything in my life has to be pretty if possible. […] I am not wearing my PE[29] gear in public if possible.

Katie favoured European bike brands with very traditional styling like Pashley and Gazelle:

> Katie: I do have a style aesthetic – which is: big wheels… […] I don't like the smaller wheels. Um, I prefer a very traditional… Dutch style bike. Big handlebars. That sort of sit-up…

…with an old-style leather seat with springs:

> Katie: Comfy seats. I'm big on the seats. I love my Brooks saddle. I'm very fond of them. […] They're just a leather seat but they look like they're not that comfy, but they're actually really,

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[28] As will be discussed in a later chapter, unlike some uses of the word 'utility' that equate it with instrumentality and functionality, a practice theoretical conception of utility does not place aesthetic considerations as external to utility. The approach taken in this work is that aesthetics play a key role in something 'working' for someone, so that a pannier bag that is functional *and* stylish is likely to provide a higher level of utility than a bag that is only functional. In some cases, form may be *more* important than function in the utility stakes.

[29] PE = physical education class in school

> really comfortable. […] They're just marvellous. I've moved my Brooks saddle from bike to bike to bike. Because I love the Brooks saddle.

A lot of the bikes in the famous cycling cities in Europe are in this style for the women, and a similar style for the men (especially in Amsterdam – see Figure 28 and Figure 29, pp. 146, 147) but this style is not so popular, or accepted, for men in Christchurch. For example:

> Katie: I have to say, you don't see a lot of guys on a nice Pashley. […] You see, my partner, he had, it was actually a Brooks… it wasn't a basket, but it was this leather bag and it's got, you know, buckles and everything. […] He's as gay as they come! [Laughs] Without being gay.

Marty, who worked in a bike shop, was also a little derogatory when describing this style for men:

> Marty: And then you've got your, I suppose your retro riders. […] They'll be cruising around on a retro style bike, um, they'll have like a tray on the front of the bike, which comes part of the bike, with a wee bag on it. […] And those kind of guys, they ride them because they look cool, they think they look cool. It's an *image* for them. Um, the function of the bike is they ride it in the summertime to and from work with our laptops and we look *good*. And we're going to get our mochas.

Male single speed minimalism/ technical retro

A surprising finding among the male interviewees was a penchant for single-speed bikes and a technical pride in older, simpler bikes. (See Figure 25 and Figure 26 on pp. 144, 145 for examples of this general style.) Five participants had single-speed bikes and another would have liked one. There were some practical benefits in terms of simplicity and low maintenance and Christchurch being mostly flat:

> Marty: Yeah, because you don't really need gears. […] There is no tuning. Um, nothing can really go wrong with it. It's lasting. […] You wind it up, it goes. You don't need to change… you don't need to worry about the gears. You're just brakes and go. It's like an automatic in that sense.

This practical justification was not entirely convincing, however. It appeared that that there was also a deeper underlying aesthetic – possibly a trend – of mechanical minimalism and novelty, where it is a simpler, more challenging, and perhaps purer way to ride.

> Dave: I've got three bikes but um the one that I commute the most on is a single speed. It's just a steel frame, um, with one gear. […] Um, oh, I quite like the simplicity and um it's just a bit different. […] I do like the aesthetic of them but um, it's also um, just something… Like I always wanted one and um for a long time I've needed a bike where I can just like go somewhere that's like 10 minutes away and not have to worry about.

Only Brett conceded, with a little prompting that such a bike was in fact "cool":

> Brett: I guess I've probably been watching some videos like cycle couriers on fixies and stuff before I got a bike and thought, "Oh, that's really cool."

Two of the participants had built up their single-speed bikes as renovation projects from old bike frames – an early 10-speed and an early mountain bike. Their pride in their projects and the resulting bikes was evident, despite their attempts to downplay that through recourse to practical justifications. Fortunately, Chris' partner was not playing along with that particular attempt at indifference:

> Chris: Well, I do, I do love it. […] So, it's one of those things where I did initially quite a bit of work on it and got it re-sprayed and done up and just kept doing things to it over time. So it's, I didn't want to get rid of it. […] It's nice to have rebuilt it. It was a good project.
> Nikki: And I think, like, watching that, you really enjoyed that. That was just a, it wasn't like you had to, it was just a little project really, and you thought, "Oh, I'd quite like to do that," and then choosing what colour to get it sprayed and all that.
> Chris: Yeah, so I wanted a commuter bike so that was a good way to do it.

This pattern emphasises that an object such as a bike can come to represent utility through many more layers than its functionality alone, and this is a facet that should not be overlooked in the promotion of utility cycling – a point emphasised by Colville-Andersen (2018) with his Copenhagen-inspired concept of "A2Bism" that prioritises not only making cycling the quickest and easiest way of getting somewhere but that also extends that utility by making it desirable: "glamorous, affordable, ennobling, effortless, mainstream" (Colville-Andersen, n.d., p. 33). Like any item subject to fashions or trends, the most practical is often not the 'coolest'. When it comes to the practical utility of men's bikes in particular, there appears to be a trend for technical minimalism, where anything attached to the frame is discouraged. This appears to represent something of a gendered pattern in bike design, trends and usage. As mentioned under the "carrying things" theme above, women were much more likely to equip their bikes for carrying capacity and to use them for general personal business and errands (Figure 24, p. 144) – and the design of bikes specifically intended for men and women appear to represent this, as seen in the 'his' and 'hers' bikes in Figure 26 (p. 145). The images earlier in the chapter showed that these distinctive bike style trends are not widespread, but do nevertheless reveal an aspect of utility cycling practice.

This trend toward minimalism could be significant for the utility of cycling for transport generally because, as discussed earlier, a good carrying capacity makes a bike usable in a wider range of situations. If such practical bikes are somehow seen as 'uncool' then fashion could hamper the effectiveness of utility cycling for some men.

Sport commuter

The sport commuter is someone who is a keen road biker or mountain biker on the weekends who also commutes to work – either as a training opportunity or as a convenient way to avoid car-parking issues and get some exercise at the same time on a mode they enjoy. The value of exercise has been covered earlier in this chapter, but the commenter in the previous chapter who complained that his training ride to work was now too short after the office move was a good example of this type of cyclist, as was Dave:

> Dave: When I used to work out at Lincoln, I would commute most days. So that's like a 40 km round trip. […] I mean I just sort of used it as training.

Financially constrained cyclists

Finally, another identifiable subgroup of cyclists is the lower-income cyclists who cannot afford to buy good quality bikes or maintain them well. Will described this group (in the context of public perceptions of cycling):

> Will: There is a certain proportion of people you see riding a bike around who have a squeaky chain and a wobbly back wheel and, you know, they are obviously kind of low status individuals, you know.

Most of the street observations earlier in this chapter took place on the main commuter cycling routes where cyclists were easier to observe in larger numbers, but these served relatively wealthy suburbs, and the bikes were usually of good quality, ridden at reasonable speed and the level of rules compliance (helmets and road rules) was high. There were some observed, however, in less affluent parts of the city, that fitted the description above. They were much more likely to be riding a poorly maintained bike, often quite slowly, on the footpath and often without a helmet. This represents a less visible type, or class, of cycling that is also important to consider.

Cycling is remarkably consistent across all levels of socioeconomic status in Christchurch, with the rate of cycling to work varying by only 0.5% (6.9-7.4%) across all five deprivation bands from most to least deprived (Shaw & Russell, 2016, pp. 27-28), therefore this group represents an important group of cyclists. ICEcycles performed a valuable service for this demographic by offering free parts and labour to repair their bikes because professional bicycle maintenance is not cheap. Judy, an interviewee in this research, noted that she had been riding around for a long time with a buckled front wheel which was binding on the brakes (not helping her experience of difficulty in cycling). This was repaired for her at another ICEcycles event, which made a big difference for her.

5.4 Summary

The aim of this chapter was to look in more detail at how regular, everyday cyclists made utility cycling work for them as a mode of transport. Whereas the previous chapter looked at utility cycling, mostly as a 'black box', relative to driving in a context of background everyday practices, this chapter 'zoomed in' on the details of utility cycling to look inside the box to see how it may be changed with respect to that situated relativity. It zoomed in to the level of enactment at which the practical intelligibility of the choice to utility cycle, or not, could begin to become evident. Where the previous chapter listed factors, this chapter attempted to weave those factors into dynamic, meaningful narratives, from which potential avenues for intervention might be identified.

Looking at the detailed themes within the interview content revealed how the many challenges and obstacles to the bike, listed in the previous chapter, showed up in the moment of travel as a large number of logistical details to take into account. This related especially to carrying both people and things, as well as managing clothing, body heat and exposure to the elements. Some of the participants reported that these many details could lead to some frustration – frustration that was avoided when travelling by car. However, it was also noted that these difficulties could be substantially improved upon with an appropriate bike and equipment, especially by providing ample carrying capacity on the bike itself. Body heat and exposure to inclement weather could also be managed, while wearing everyday clothing, through appropriate rainwear and cycling at a more relaxed pace. Although accompanying or transporting children by bike was found to be very rare in Christchurch, cargo bikes represent a genuine car substitute for this purpose. The safety of cycling was also shown to be a significant factor, even for this group of experienced cyclists.

If more trips currently undertaken in a car are to be reclaimed by the bike than these details will need to be addressed at many levels. Copenhagen and Amsterdam were shown as examples of how all of these interventions might be possible, however, it was also evident that a significant change in cycling culture would be required to achieve this.

Looking beyond the individual themes identified within each interview to the overall narrative sense-making behind each interviewee's account revealed a diversity of individual approaches to utility cycling. The mix of personal benefits of utility cycling was experienced and expressed differently by each person. Most derived pleasure from a unique combination of some or all of the following: an enjoyment of the freedom, physical activity, connection to community and nature experienced while cycling; the health and fitness benefits of cycling; or the social and environmental benefits of cycling.

For about half of the interviewees, their utility cycling practice could be associated with a strong conviction as to the value of cycling, in some way, being the 'right' thing to do in terms of their unique identification with those benefits. This half of the participants were more likely to be general-purpose cyclists, which required a greater level of commitment to deal with some of the logistical issues described above. The other half of the interviewees tended to be more pragmatic, and to cycle out of convenience or necessity. This group appeared to be motivated to cycle because it works better for them than the car, usually for commuting to work, due either to a lack of car parking or inability to afford a car. Finally, different expressions of cycling style were also noted, including a retro feminine style, male minimalism and fascination with single speed bikes, sports commuters and low-budget cyclists, who may struggle to afford a car and bike maintenance.

This wide range of personal expressions of utility cycling show that, although cycling may be compared to other modal practices as a single entity, it cannot be promoted as such. Any attempts to intervene in favour of utility cycling must address the myriad of ways it is engaged with and experienced. This shows that even the functional aspects of cycling will be experienced differently and must be expressed with the widely differing range of possible personal, situational and aesthetic sensibilities in mind.

The images at the beginning of this chapter showed that, currently, utility cycling in Christchurch is quite strongly associated with sport and recreational cycling, especially when compared to the European cities. The previous chapter showed that 'hard' functional factors tended to dominate over 'softer' personal preferences and values, however, when viewed holistically in this chapter it became clear that none of these factors 'work' for people in isolation. What is important is how they come together in narrative, sense-making wholes – whether by individual person, individual trip or qualitatively identified types of individual and types of trip circumstances. It appears that it is these narrative wholes – in whatever form or combination is observed to be to make sense – that must be considered to be the 'unit of analysis' of any consideration of utility cycling practice as modal 'choice'. And it is to such a discussion of the implications of this research for both practice theory and utility cycling that we now turn.

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6. Discussion

In this work, I began by setting out to explore how utility cycling could be framed in a way that took into account the lived experiences of people as they head out the door to travel somewhere in the midst of their everyday lives. The aim was for the context of the individual trip to be considered at the same time as the larger structural aspects of everyday travel. This approach was intended to counter mainstream positions with respect to the promotion of utility cycling that tend to focus at either the individual level or the structural and infrastructural level alone, thereby misattributing agency by retreating to one end of the structure-agency dialectic or the other, in isolation.

Practice theory, instead, places its attention upon practices as the central 'unit of analysis'. Accounting for a practice 'entity' is seen as paramount to any practice theoretical analysis, where a diverse range of socio-material elements is woven together into some kind of performative whole. Most accounts of utility cycling through a practice lens attempt to account for it in just such a way – as a single entity of elements held together by performances of cycling for transport. However, in this work, where the encouragement of mode-switching from the car to the bike is the primary objective, the need to account for such an entity did not become apparent. The primary focus was on the 'choice' *between* two pre-existing practices and their relative relationship, rather than attempting to account for either in isolation. The language and concepts of practice theory were found to be very applicable, but the need to account for a single practice entity became problematic.

Such a realisation, raised some important questions about the nature of the practice entity and its role and necessity in the application of practice theoretical approaches. This has led to some key questions that explore these dynamics further in the context of this research setting. This chapter begins by revisiting the question, what *is* a practice, before going on to challenge whether an account of any single practice entity was in fact required in this work. The following section then considers, how the fundamental dynamics of practice theory might be applied in a practice *landscape* setting to 'choice' *between* practices, and whether in fact the same principles can be applied without accounting for a *single* practice entity.

In response to these challenges with the practice entity in a modal 'choice' setting, I then offer an alternative 'practicescape' based analytical framework. This is intended to be applied specifically in response to the type of practice switching, or practice substitution, that modal 'choice' represents. Working in the space between pre-existing practices, it is designed to address the types of situations

outlined in the opening passages of this work, where the desire is to promote a favoured, more environmentally sustainable practice over a less desirable alternative. This conception draws on the fundamental dynamics of the practice idiom to demonstrate how it may be more generically applied to utility cycling and modal 'choice' within a 'practice landscape' – without a need to identify an intermediate practice entity. This practicescape framework is then presented in terms of utility cycling to demonstrate how it may be applied to other interventions designed to promote favourable sustainable practices. Practical methodological steps are proposed to allow the potential application of the framework to similar interventions favouring sustainable practices.

6.1 Practice theory and the trip-level consideration of utility cycling

A key part of any conventional practice theoretical account of utility cycling would involve an attempt to define utility cycling as a practice entity in its own right. This would include identifying the various elements of the practice, however defined or grouped by the particular formulation adopted, but including aspects such as materiality, knowledge, skills, rules, norms, perceptions, etc. Observation of many performances would be drawn on to attempt to explain how these elements form a recognisable and normative whole, and how performances are monitored and adjudicated upon as being 'right' or 'wrong', in order to maintain and stabilise (or change) the practice. This practice could then be compared with driving and the backdrop of other everyday practices.

However, early in the analysis process for this work it became clear that resolving a 'utility cycling' practice in this way was not only proving difficult but also not particularly relevant to the research. It seemed that providing a detailed account of how and why utility cycling is the way it is in Christchurch was not required in order to investigate how it may be promoted. But this, of course, raised some fundamental questions, which took some time to consider. How could practice theory be engaged without the eponymous practice as emphasised in the practice literature? This section explores that question further.

6.1.1 What is a practice?

The question, "What is a practice?" would appear, at first glance, to be a question that practice theory is ideally suited to answer. And, indeed, as we have seen, practice theorists offer a number of definitions. However, such definitions typically only describe theoretical features, attributes and dynamics of a practice, and an intuitive understanding of what a 'practice' actually *is* remains elusive. Some even suggest that attempting to define practices generally, or even single practices, is not

appropriate. Practices clearly exist as some kind of phenomenon. They effortlessly enter the everyday vernacular as a "customary, habitual, or expected procedure or way of doing of something" ("Practice," n.d., Def. 2) – a type of activity or set of actions that is recognisable enough to earn a name (e.g., cooking, teaching, skiing, showering, etc.). However, recognition does not necessarily lend itself to definition, bounding or analysis. How, then, can practice theory proceed centred on such an enigmatic concept?

Most practice theorists refer to *a* practice, as some kind of entity, that consists of performances that hold together collectively shared 'elements' or organising principles (e.g., Gram-Hanssen, 2011; Reckwitz, 2002b; Schatzki, 2002; Shove et al., 2012; Warde, 2005). Indeed, Warde (2013) concurs with Reckwitz (2002b) in "considering it as essential to a sociological version of the theory that we think of practices as *entities*" (Warde, 2013, p. 20, emphasis in original). The practice entity exists conceptually as the central "unit of analysis" of practice theory (Shove et al., 2012, p. 5). As a theoretical concept, the practice entity usefully and conveniently threads the needle between the sociological extremes of individualism and structuralism (Feldman & Orlikowski, 2011; Reckwitz, 2002b) because it allows for social phenomena to be accounted for without it having to reside solely within the rational intentions of a sovereign individual or within separate, overarching social structures. Aspects of social existence, such as knowledge, skills, meanings, bodies and things, can all, instead, be located in practices, thereby dissolving this dualism (Nicolini, 2012, p. 3). It is the practice that plays an important normative role in determining what qualifies as 'right' or 'wrong', or 'acceptable' or 'unacceptable', performance (Schatzki, 1996, p. 101), rather than individuals. Whether an action is part of a practice called 'acupuncture', for example, or simply a "well-intentioned prod of a needle" (Barnes, 2001, p. 25) is a question that is constantly and actively performed at the heart of the dynamics of that practice.

Shove takes what she refers to as a "strong" position on practices that favours a clear "practice-as-entity" (over "practice-as-performance"), as "something that exists between and beyond specific moments of enactment" (Shove, 2012b, p. 418). This persistent quality of practices is seen as important with respect to intervening to change practices because it is this 'entity' that unites all of the countlessly adaptive, unique individual responses to circumstances. It is this entity that is changed in any attempted intervention in practice. Schatzki similarly emphasises the practice, referring to clearly defined practices, as a "*single* common structure" (Schatzki, 2005, p. 480, emphasis in original) and of "delimitation of boundaries" (Schatzki, 2002, p. 87) and ascribes ends to practices that go beyond those of the practitioners (Schatzki, 2005). Both acknowledge the messy and contingent nature of practices, including their overlap with other practices, but also strongly emphasise the nature of

practice as an entity. Nicolini (2012) favours a much more fluid and contingently defined entity, however, he still attributes a normativity to that entity, once identified.

In some practice theoretical formulations, a strong, 'elements'-based practice-centricity also tends to minimise the role of the practitioner to a mere "carrier" (Reckwitz, 2002b). Shove et al. (2012) extend this concept to the practice "recruiting" people as its carriers, thereby reifying practices and almost implying a level of agency to practices, as "a quasi-metaphysical power reigning causally over the actors" (Alkemeyer et al., 2017, p. 69). This approach favours the routine and habitual nature of the practice entity, presenting the performance as a successful "choreography" of the actions of the individual (Alkemeyer et al., 2017) to which they sign up. Although Reckwitz (2002b, p. 256) describes carriers as not being "judgmental dopes who conform to norms", such analyses are often reduced to discussion at the elemental level, rather than at the level of intelligibility to the actors whose acting integrates those elements. Such approaches risk minimising the individual sense-making and practical coping that animates practices and weaves them together into a recognisable whole.

The practice entity is a somewhat slippery and mysterious concept, however. Nicolini (2017b, p. 32) refers to a practice as an "epistemic object" (Knorr Cetina, 2001, p. 181), emphasising practice as a complex, dynamic object that can never be resolved in any absolute sense. Such an object should only be investigated towards an end of better understanding some social phenomenon. Attempts to delineate or define the practice itself succumbs to a "temptation to reify the object of study, forget that practice as an epistemic object is a second-order concept and focus on refining such epistemic object rather than using it to investigate society or organisation" (Nicolini, 2017b, p. 32). Investigating practices is a *process* in its own right, and the practice serves as a means to a research end, rather than as an end in itself. Fully defining a practice is not the goal (and not possible) – rather, the aim is to learn about social phenomena through partially investigating the practice.

This means that no practice can ever be fully defined independently of the perspective of the researcher. Nicolini (2012, pp. 170-171) refers to the research process itself making an "agential cut" (Barad, 2003) into the practice landscape of utility cycling. From this perspective, the phenomenon of interest can only be revealed through its relation to the research practice and cannot in fact be understood in any kind of absolute way that is independent from the means of engaging (or "intra-acting", Barad, 2003) with that phenomenon. In a similar way, Alkemeyer et al. (2017) note that any observation of any social phenomenon plays a role in how it is constructed: "sociality is not just simply 'out there' but must be made observable methodically through the lens of analysis" (p. 70). Any account of a 'practice', then, can only ever be partial and contingent upon the context set by the

research itself – and, therefore, the practice of research can never be assumed to be external to, or independent of, the practice being studied.

Presented in this way, it becomes clear that practices are in fact somewhat elusive and difficult to contain within convenient analytical framings. They can readily be talked about in everyday contexts, yet are more difficult to mobilise in a more structured research setting. While Warde (2013, p. 20) describes the resolution of the practice entity as "essential", he also notes that, in practice – empirically – drawing boundaries around a certain way of doing something can be "highly problematic". This could simply be because "we are inept in dealing with fluid entities" (Nicolini, 2017b, p. 29) and that academic and research settings are simply more accustomed to dealing with detached, reductive and bounded constructs that assume universal application and linear causality, even if the world presents itself otherwise. But, at the same time, attempting to fit emergent and localised adaptive action into a practice construct, does seem to hint at the type of structuralism practice theories emerged to counter (Alkemeyer et al., 2017). At the atomistic level, performances (e.g., trips) make sense as a base level of practice, and at the other end, the wider *field* of practices and related accoutrements makes sense as a backdrop to performance. However, requiring a single, normative and bounding practice entity, which somehow sits between performances and their widest context, which goes beyond any single practice, begins to seem somewhat arbitrary.

As outlined in Chapter 2, the danger of a 'strong' entity approach is that the practice can begin to be considered as a static 'thing', and conflated with the elements associated with it, in a way that begins to minimise the performance that exists at its heart: real-time practical coping of situated individuals. This results in "a danger of practice theories succumbing to a new type of 'structuralist' functionalism" (Alkemeyer et al., 2017, p. 76), which could reinstate much of the top-down, structural perspective that practice theories have strived to transcend.

This is not to suggest that clearly bounded practices do not exist. In the practice literature, many examples of practice theoretical analysis focus on defining and bounding practices normatively. These include practices that are quite normatively distinctive sports or pastimes, strongly materially mediated practices or professional practices. Examples include: Nordic walking (Shove & Pantzar, 2005a), hula-hooping, snowboarding, skateboarding, air-conditioning (Shove et al., 2012), acupuncture (Barnes, 2001, p. 25), telemonitoring of heart patients in a hospital (Nicolini, 2012), the "Shaker" medicinal herb business in a specific village in 1850s New York, and day trading on the Nasdaq stock exchange (Schatzki, 2002). In each of these examples, the identification of a single practice with a clear normative and correct 'way of doing things' was the goal. Warde (2013) notes

that it is easier to account for normativity in the case of formalised practices such as these, which have rules, codes of conduct and governing bodies, such as professions, sports and organised pastimes. Acceptable conduct in a medical setting, for example, is critical to that practice. Similarly, a sport is a clearly defined bounding of a way of playing a particular game or carrying out a specific activity. Understanding the nature of such practices in terms of what is acceptable and unacceptable practice and how that delineation is achieved would be an important part of any related research.

However, Warde (2013) then goes on to struggle to classify a practice as pervasive as eating in practice terms. If practice theory is to be sufficient to account for any social phenomena, as claimed, then it must be able to account for far more than only formalised practices. Other everyday practices do not have such clearly delineated normative boundaries. Warde (2013, p. 25) notes that eating is more "loosely framed", often performed in private and lacking the kind of social coordination that may be central to more formal practices. He also notes that eating performances sit *between* at least four other more clearly established practices. The neat and actively maintained boundaries evident in the formal examples of practices dissolved in the more casual and less structured settings in which eating takes place, making the typical, normative practice entity difficult to identify.

Warde (2013) noted that he was still very much able to talk about eating in terms of practices, however. This included typical aspects associated with practices, such as a foundation in regular and routine performance, specialised paraphernalia, procedures and knowledge, and being easily recognised when encountered. It also included complex relations with other practices and positioning in everyday life. All of these are aspects typically associated with practices. All that was missing was a normative component – a "shared understanding of what it means to eat well" (Warde, 2013, p. 22) – that could delineate acceptable performances and thereby bound a practice entity. So, he was describing eating very much in practice terms, only, with difficulty invoking the traditional, normative, singular practice entity.

Such an example raises important questions about the claimed centrality of the practice entity as the 'unit of analysis' of practice theory. If practice theory struggles to account for a practice – or maybe 'activity' – as ubiquitous as eating, then how can it claim to account for wider social phenomena more generally? Warde's challenges in bounding eating as a single practice entity reflect similar issues to those encountered in this research with respect to utility cycling.

6.1.2 Was an account of a practice entity required in this work?

It is very clear from the number of practice theoretical accounts of utility cycling presented in Chapter 2 that utility cycling can be discussed at some depth in practice terms. However, although the typical elements of practice were present in my analysis, as well as complex interactions with other practices, a clear practice entity did not become evident through my analysis – and, more importantly, nor did the *need* for one.

As one would expect, most papers considering utility cycling through a practice lens framed it as a practice, typically in the Shovian style, where the practice entity involves interacting materials, meanings and competences. Through this Shovian approach, cycling as a practice is placed into a dynamic historical trajectory with other practices, especially driving, with which it competes for space on the roads and time in the day (Shove, 2012b, 2012c; Shove et al., 2012), to the extent that driving can be seen to have "colonised" what people do (Watson, 2013). Utility cycling is seen to be successful as a practice, in terms of the cohort model of practices, when it can "recruit" "carriers" of the practice, so that they "defect" from driving (as per Shove et al., 2012).

Such an approach requires one to attempt to account for utility cycling as a configuration of elements, existing in competition with driving and against a backdrop of other everyday practices. Practice theory calls for these practices to be accounted for as entities that delineate acceptable or unacceptable performance in some way, such that it can be explained how the performance of the practice is "monitored" (Shove et al., 2012, pp. 99-105) and why it is performed the way it is and not in some other way (e.g., Nicolini, 2012, p. 219; Rouse, 2007; Schatzki, 1996, p. 101; Warde, 2014). The implication is that some kind of full, convincing account of the practice is required before proceeding with a practice theoretical investigation of social phenomena (Nicolini, 2012, p. 238).

However, utility cycling in this work fell into a similar category to what Warde (2013) encountered with respect to eating above. Utility cycling clearly exists as a practice, and can be described in terms of practices and the elements. However, in the context of this research the identification of a normative entity that performatively delineates 'right' and 'wrong' utility cycling performances and, at the same time, convincingly explains why the local practice takes the form it does, and not some other, was not required.

This gives rise to two challenges with respect to this research. The first is that a single, monolithic practice of cycling was not immediately apparent. The second is that it was not *required*.

When observed at the level of everyday practical coping, a single "way of doing" utility cycling in Christchurch did not become evident. Aside from the obvious aspect of riding a bike for transport purposes, the wide range of possible locations and circumstances did not lend themselves to a single delineation. Interview participants had difficulty in describing how their cycling practice came about – most describing a process of trial and error to work out what worked for them. There was little sense of there being a socially mediated normativity to how utility cycling should be conducted. If anything, the normativity was materially mediated, requiring participants to engage in a mostly solitary "dance of agency" (Pickering, 2005, p. 35) with the bike, roads, equipment, weather, traffic, etc. The social normativity that theorists insist upon was not particularly evident. Normativity existed in places, such as amongst sports commuters, or in the choice of clothing and equipment for some, but not in a singular, overarching sense.

This may be because, as noted by Spurling and McMeekin (2015) and Cass and Faulconbridge (2016), defining utility cycling practice by the mode of conveyance alone was not necessarily appropriate. Instead, the act of cycling for transport could vary considerably depending on the purpose of the trip – as was demonstrated in this research. Cycle commuting, for example, was quite a specialised, focused and predictable type of journey, which could be carefully prepared for in advance. General-purpose cycling, on the other hand, was quite a different endeavour altogether, requiring a lot more flexibility and often commitment. Cycling with children was yet another significant variation on the practice. Even among these categories, it was also observed that different groups engage with them differently. For example, the 'sports commuter' group engaged with commuting by bike as an extension of their recreational practice and was motivated largely by convenience. Further, any of these groupings could be further subdivided on the basis of location of the origin, destination and route in between – each having a substantial impact on the nature of the trip.

Spurling and McMeekin (2015) note that such divisions could continue to finer and finer levels without a definitive end point. This reinforces the point that the way a practice is presented and analysed depends very much upon the context in which it is being researched, as different research questions will need to highlight different aspects of the range of practising observed. However, it also underscores a point to be discussed further later, that practices must be engaged with at multiple levels and across a wide range of performances. While practices may be described in singular, monolithic terms, their practising certainly may not – which is a danger of approaches that emphasise entity over performance.

The main issue, however, was not that identifying and accounting for a single utility cycling practice proved difficult, but rather that it was neither necessary, nor appropriate, to do so within this research setting. The primary obstacle to resolving utility cycling as a single practice entity, relative to this research question, was the gradual realisation that this work is not, in fact, primarily about utility cycling. Rather, it is, in fact, a work about *modal 'choice'* – specifically, the modal 'choice' to utility cycle for transport purposes, or not. This is the event that occurs in the moment that a person decides that they want to travel somewhere, in the real time, unfolding experience of their everyday life. It is the moment in which that person in some way or another, whether through careful, intentional deliberation or an automatic response, begins heading for the car, the bike, the bus stop or continues walking to their destination.[30]

This is the moment of acting that is instrumental in affecting the promotion of utility cycling over driving. Both utility cycling and driving already exist as well-established practices in their own right. Why utility cycling is the way it is in Christchurch, and not some other way, is not particularly relevant. The research interest is in how to encourage people to 'choose' the bike more often, rather than the car, when heading out their door. The focus of any intervention is shifting the *relative* differences between the practices – or the "balance of competition" between them (Spurling & McMeekin, 2015, p. 80). There certainly needs to be a focus upon *improving* the utility of cycling practice *relative* to the alternatives, which requires analysis of the details of its execution, however, the overall nature of the practice does not need to be accounted for in order to achieve this. This means that to a large extent, each individual practice can be 'black boxed', with only the aspects that are relevant to modal 'choice' requiring attention.

What is important to note, then, is that this research was focused upon a 'moment', or an 'act', that involves, in some way – whether intentional or automatic – navigating a 'choice' between very distinct and mutually exclusive practices in the wider context of a backdrop of other everyday practices. It is not clear whether this act of modal 'choice' itself qualifies as a 'practice', however. Practice concepts like practical intelligibility and normativity apply to this moment, which are resolved against a background context of other everyday practices. Given that it is an act that sits so resolutely *between*

[30] With the proviso, as mentioned earlier, that 'modal choice' is used to describe the process of somehow selecting between modes, as per the usual parlance, but the word 'choice' should not be taken to imply that this is a fully rational or intentional process, nor that the 'choices' are presented on an equal footing within the everyday transport practice landscape.

practices, however, it is difficult to characterise modal 'choice' as a practice in itself. Perhaps it could be framed as part of a practice called 'everyday transport' instead. However, carving out an intermediate distinction between this single act of 'choosing' and the wider field of practices amongst which it occurs becomes difficult to discern or justify as any kind of single, normative entity.

Instead, in this work I question whether accounting for a single practice entity is in fact required to effectively do practice theory in this research context. At its simplest, a practice can be thought of as some kind of *context* to a particular, recognisable set of actions. At its core, some kind of act, or acting, is required in order to activate the performative dynamics described by the practice idiom. But this acting must take place within a context made up of the stuff of practices – things, meanings, skills, rules, sense-making, norms, etc. as well as other actions and practices – and, crucially, the acting must actively integrate all of these aspects together in some way. However, as per Nicolini (2012, 2017b), I concur that the way in which all of these aspects interact must be observed empirically. It appears that the concepts and 'elements' of practice theory form a ready "vocabulary" and "grammar" (Nicolini, 2017b, p. 24) through which to describe practice landscapes, however, it also appears that these same concepts resist restrictive theoretical constraints that limit them to a singular, intermediate entity. These concepts are present, and it is possible to construct an account from those concepts – from that vocabulary and grammar – however, I observed their application and distribution to be more nuanced, situational and textured than a single practice entity can account for.

Perhaps constructing the world of practices fits between the extremes of individualism and structuralism through a middle ground that is "more than one, but less than many" (J. Law, 2002, p. 3). The Lego system of building bricks, as an analogy, offers freedom of creative expression to represent the world through play, which does not require building a toy from scratch from raw materials, but at the same time, offers far more flexibility than a preassembled single toy. In a similar way, perhaps practice theory is most powerful as an analytical framework when it offers a system of analytical building blocks from which relevant accounts of social phenomena may be constructed, where the vocabulary and grammar provide some rules and structure as to how they may connect, but it is empirical observation in response to a research particular question that ultimately guides their form. This would allow the field of *practising* itself to have the last word.

In this research, where modal 'choice' sits so firmly between so many mundane and less formally regulated practices, attempting to account for modal 'choice' as some kind of single, normative entity was found to be problematic – but also unnecessary. Existing as it does in a sea of other practices, it proved sufficient to the research question to simply consider modal 'choice' as an action that occurred

in a moment – whether a practice or not – placed in a wider context that included many other practices. The thematic analysis of utility cycling as modal 'choice', as presented in the previous findings chapters, quickly revealed a stable set of factors, including other practices. It was among these factors that modal 'choice' happened on a daily basis. These were the factors woven together by the doing of modal 'choice' – through just the same recursive dynamic that is seen as so central to practices. In this case though, the context to the acting is observed empirically rather than through an attempt to fit observed reality into a pre-existing theoretical framework.

In order to allow for a more generic application of the fundamental practice theoretical principles, this work attempts to generalise these principles in terms of some kind of acting occurring in, and interacting with, a wider *landscape* of practices – a 'practicescape' – rather than a single practice entity.

6.2 Introducing an activity-context, 'practicescape' approach

So, if the practice entity, which is seen as "essential" to practice theory (Warde, 2013, p. 20), is not evident in this empirical work, then how is it that it is still possible to describe modal 'choice' to cycle in terms of practice theoretical principles? What are the fundamental dynamics of practice that this setting represents, despite the lack of the practice entity? This section considers these questions in light of a proposed 'practicescape' approach, which aims to simplify the recursive dynamics of a practice down to an activity occurring within a wider context of a practice landscape – or practicescape – which is both shaped by that context, while at the same time weaving together the aspects of it, but without being limited to a single practice entity.

6.2.1 What are the fundamental dynamics of practices?

The first observation to note is that practice theory is primarily about considering unique, adaptive, individual performances of a recognisable activity in this way: in a recursive relationship with a wider context, which that activity performatively weaves together. This underpins a potential strength of practice theory in its ability to transcend structure-agency dualisms through its attempt to consider activity and context simultaneously. To this end, a practice is a performative 'entity' – or "regime of activity" (Nicolini, 2017b; Nicolini & Monteiro, 2017) – that, in some way, prefigures the activities that define the practice. A complex assemblage of elements (Reckwitz, 2002b; Shove et al., 2012) or organising principles (Schatzki, 2002), as diverse as material artefacts, skills and meanings, shape the range of intelligible actions that present themselves to the practitioner, while at the same time, being woven together through that activity. Schatzki (2002, p. 96) states that "actions presuppose practices",

meaning that although every action takes place as a practical coping with the present circumstances, the horizon of intelligible actions is always prefigured by the arrangements and organising principles of the practice. And, of course, the diverse range of elements which practice theory always considers concurrently keeps the "field of vision" as wide as possible (Duncan et al., 2018, p. 14). In this way, the idea of a practice entity encompasses the dynamic of an activity occurring within a wider and diverse context that both shapes, and is shaped by, the performance of that activity.

As discussed in Chapter 2, Nicolini (2012, p. 7) noted that practices are primary because they provide a "scene of action" within which it is possible to explore "what sort of agency and 'actor-ship' is made possible by these specific conditions". Practices create a backdrop in which people act, and which shapes how people act, but the nature of the people doing the acting is still a central component of that setting. It is in this way that the value of the practice entity is revealed in providing crucial *context* – or "horizon of intelligibility" (Nicolini, 2012, p. 164) – to any acting. Sense-making must always occur with reference to practices.

The activity-context basis of the practicescape approach that I have developed, in response to the issues identified in this research, is predicated on a similar dynamic – where the 'activity' is equivalent to the performance and the 'context' of that acting is similar to the practice – but also simplifies it for more specific, instrumental applications. In this parallel of the practice dynamic, the *act* of modal 'choice' is prefigured by a wider *context* which shapes the nature of that action – the only difference being that the context does not attempt to resolve itself into an intermediate practice entity. Given that the practice theoretical world consists in practices "all the way down" (Feldman & Orlikowski, 2011, p. 1250), any activity occurs within a *landscape* of practices – a *'practicescape'*. Even when a single practice entity is not apparent, any acting still always occurs within and can define its own practicescape – a context from among the entanglement of other activities, practices and elements of practices.

The practicescape process, then, declares that a structured and recognisable activity always takes place within the intelligibility set out by a practice*scape* of many practices, rather than a single practice, where the practicescape contains all of the 'stuff of practices', such as practices, elements, actors, artefacts, etc. The empirical setting has the last word in terms of the factors that make up the practicescape present themselves, rather than any theoretical assumptions of singular practice entities.

This approach recognises the natural distinction that exists between the fully 'zoomed-in' moment of acting and the wider, fully 'zoomed-out' context of that acting – reflecting the extremes of individual agency and structure that practice theory seeks to transcend. Of these extremes, the moment of acting could be considered a natural atomistic limit of practising, as a discrete unit of observation that occurs as a single event (Schatzki, 2002, p. 191) and which naturally resists further subdivision into smaller units of observation empirically. At the other extreme lies the complete context in which the acting occurs. In theory, this could include the whole social and physical world, but in practice can be determined empirically relative to the moment of acting, such as the factors that arose thematically in this analysis. This context could include all of the typical 'elements' of a practice, as well as other activities, events and practices.

The factors observed in this research with respect to modal 'choice', fully contain its "horizon of intelligibility" (Nicolini, 2012, pp. 172-173) – comprising the elements from which sense-making with respect to modal 'choice' can emerge. The act of modal 'choice' performs these factors into their dynamic relationship with it. At the same time, the nature of these factors prefigures what is intelligible – what makes sense to do. This activity-context dynamic is the essential, central dynamic that is ascribed to practices, yet it was observed empirically rather than being derived from theory. It does not necessarily fulfil the criteria for a practice entity, especially the socially normative aspect. However, what is important is that the practicescape – as the activity-context nexus – was observed empirically, with respect to the research question, and, therefore, that is what is in fact frames and delimits the act of modal 'choice'. It is then the work of the research to explore the myriad of ways in which that dynamic is performed into being, which will always be partial and incomplete process. This is similar to the empirical emphasis that Nicolini (2012) so strongly advocates for, but without requiring the normative bounding. The activity is bounded in whatever way it is bounded – an unknowable mystery that exists somewhere 'out there' in the real world that the analysis process can strive to understand partially with respect to the research question, but will never fully resolve.

Between these extremes of action and context, the practice concept appears as a kind of intermediate contextual entity, but lacking the stable conceptual bedrock of either end of the structure-agency duality. As a result, the practice entity occupies an awkward and potentially arbitrary middle ground as a context to the acting. When zooming out into the space of inter-practice relations, there can be so many overlaps between practices as to become confusing and attempts to define boundaries to the acting can become so contingent as to be meaningless. In such a setting "asking what is the boundary of a performance does not make sense" (Nicolini, 2017b, p. 29). So, it is for this reason that,

in situations where the research question does not explicitly call for an account of a practice as an entity, the practicescape approach abandons any attempts to account for a singular or absolute sense of an intermediate entity. Instead, it simply aims to define an activity of interest and its overall activity-centred context as a *single*, empirically determined backdrop, zoomed-out to the full extreme relevant to the research. Any intermediate normative practice entities that exist within that context then need only be resolved to the extent that they relate to that central activity – and they may be partial, fleeting, localised or contingent. This approach allows for more textural and contextual performances of normativity and teleoaffectivity.

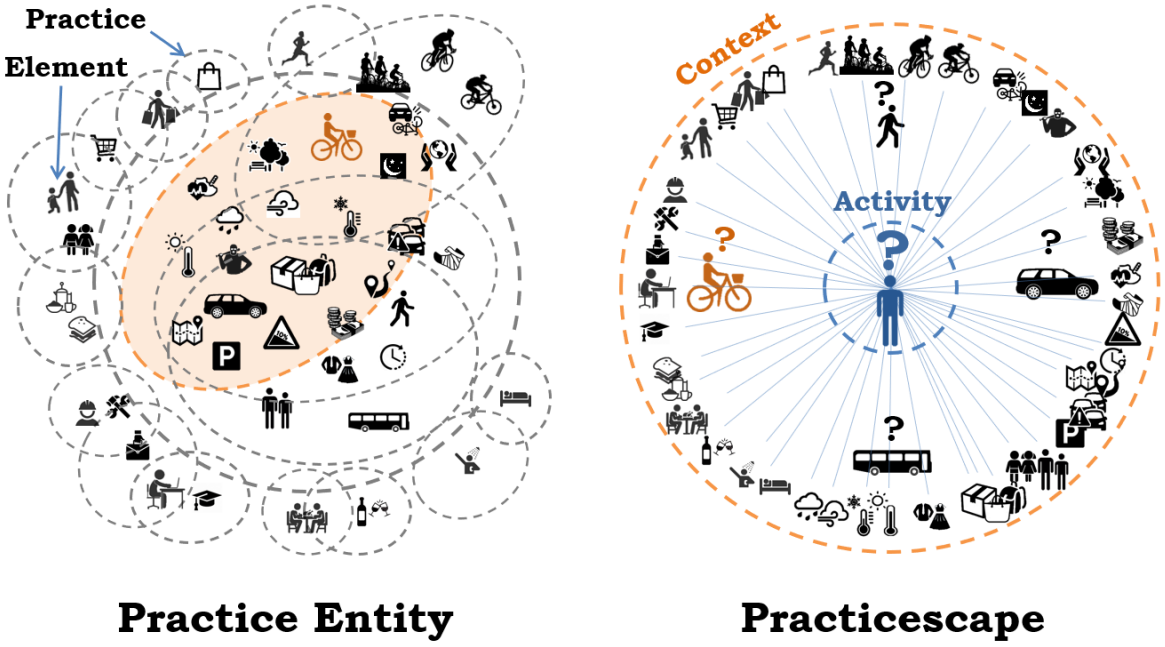

Figure 30: A visual representation of the distinction between the practice entity approach and the practicescape approach.

Practice theory is particularly interested in delimiting action that is determined to be 'right' or 'acceptable' and therefore within the bounds of the practice, thereby distinguishing it from 'wrong' or 'unacceptable' actions. In terms of Figure 30, if attempting to account for and explain a particular practice within a complex and entangled practice landscape, such as the image on the left, then it can be clearly seen why some form of delineation would be prioritised. However, in the case of the activity-context approach on the right, such as in this research, the activity of interest is already bounded by the research question and its relationship to the research setting and, therefore, normative delineations become less important – any bounding is simply determined empirically, through observation.

The practicescape approach, depicted on the right in Figure 30, is not attempting to be reductive or to deny the entangled complexity evident in the depiction on the left. Instead, it recognises that when a research question is considering a specific, well-defined activity – in this case modal 'choice' – that simply observing that activity, with respect to the research question, will define its own context. Once defined, and bounded empirically in this way, then an exploration of the relationship between the activity and its context can proceed.

This activity-centric approach reduces the overwhelming complexity of the whole practice landscape down to only the view of that landscape from the specific perspective of that activity. It is akin to perceiving the night sky as a dome of many pinpricks of light, even when, in reality, it represents a vastly more complex universe. For nearly all intents and purposes that take place on Earth, however, such as celestial navigation or simply stargazing, this geocentric model of the universe is more than adequate – these activities can take place without requiring a full cosmological understanding of the universe. For most earthbound purposes, the geocentric model suffices, even when this is known to simplify the true complexity behind the night sky. In the same way, an analysis of modal choice can be framed and contained by observing the related practice landscape from an activity-centric, modal 'choice'-centric perspective, as it appears in and from that moment of acting. Only the complexity applicable to that setting need be resolved.

The practicescape can consist of other practices, activities or any of the elements of practice. Extending the stargazing analogy further, a point of light may in fact be a planet, a star, a nebula or a whole galaxy, but from the viewpoint of an earthbound observer they all appear as 'stars'. In the same way, to a person heading out of their door to travel somewhere, bikes, roads, weather, social perceptions of cycling and child-rearing practices all line up as potential factors to be taken into account. Each is a very different concept from a more holistic perspective, but when viewed *entirely* from the moment of modal 'choice' they are all some kind of factor that interacts with that moment (as depicted in Figure 30).

In the case of modal 'choice', much of the observed normativity actually existed between the modal practices. For example, to some, driving was seen as a 'normal' and acceptable way in which to travel, while cycling was seen as 'mad' or 'crazy', and 'nothing' could make them cycle. For the 'sport commuter' group, some of the normative influences of recreational cycling appeared to influence their perception of the circumstances under which cycling was appropriate as a mode of transport and how it should be done: typically, when the car did not work due to a lack of parking and only if shower facilities were available so that they could ride in cycling-specific clothing and change at work.

The nature of these norms could differ from office to office, meaning that there were local variations. For the 'conviction cyclists', the car was only acceptable as a last resort – in some cases almost tinged with a sense of failure. In these cases, the normativity with respect to modal 'choice' arose between utility cycling, driving, recreational cycling and workplace practices, among others, and could also vary situationally and by location. Each represented a different normative configuration, however, the practicescape approach does not require the normativity of modal 'choice' to be resolved into a single 'practice', or not. Instead, it is content to simply observe the normative variations as they occur, and however they occur, within the wider practicescape of the acting.

The same recursive dynamics that are ascribed to performances and practices can then also be applied to the practicescape: context prefigures action, while action weaves together what is empirically observed to be its context. The modal practices of everyday transport represent this dynamic of the context prefiguring the options available for the central action: the wider context of modal 'choice' strongly shapes the possible outcomes of transport 'choice' into narrow modal channels, each signifying a very different experience. This channelling and sorting of potential actions into 'easier', 'harder', more or less 'convenient', etc. is identical to the dynamics of practices prefiguring and qualifying practice paths as described by Schatzki (2002) and expressed in his assertion that "action presupposes practices" (p. 96). In my language, action presupposes a practice*scape*, without necessarily needing to resolve an intermediate practice entity middle ground.

At the same time, in the familiar recursive refrain of practices, the nature of that acting also has repercussions for the shape of its context: the act of modal 'choice' has ramifications for the nature of future prefiguration of that act. For example, more people cycling could affect material aspects, such as traffic dynamics on the road, or meanings, such as social norms relating to modal 'choice'. The adaptive nature of practices, described in Chapter 2, also applies to practicescapes. However, the mechanisms of more substantial change to the practicescape will often lie well outside of everyday performances of modal 'choice' – for example, in politics, road policies, budget allocations, lobbying, etc. – as also discussed in Chapter 2. So, even if the moment of modal 'choice' is only considered to be a single activity, it still demonstrates the recursive dynamics attributed to practices – but without requiring recourse to an intermediate practice entity. It appears that the principles of practice theories can still be applied, even in the absence of a single, clearly defined, normative practice entity.

6.2.2 Temporality and causality in practices

Activity and context also have the same fundamental epistemological tension that exists between performances and practices. Although the recursive dynamic between activity and context (and performance and practice) is theoretically satisfying in its neat avoidance of dualistic extremes, it does however present an empirical challenge in that

> "'structures' and 'action' cannot be observed simultaneously or in the same manner: structures in the sense of patterns that have been formed in historical contexts can only be identified *ex post facto*." (Alkemeyer et al., 2017, p. 69)

The zoomed-in perspective of the adaptive, practical coping of an individual embedded in evolving circumstances in real time is very different to the zoomed-out context of the practice landscape as a whole, which can only emerge at larger scales, after the fact.

This creates an awkward ontological tension within the recursive practice dynamic. The nature of the activity at the centre of the practice is different in nature to the wider context in which it takes place (and performs) – the activity at the centre of Figure 30 is a verb, a *doing* of something, while the context is the setting for that acting, comprised of many abstract and concrete entities (nouns), through which that activity navigates. This distinction has temporal and causal implications for practices. The situated, adaptive accomplishment of the practitioner in the moment of acting is a unique instance of practical coping that responds to the circumstances in which the actor finds themselves. At this scale, the first-person perspective of the actor is dominated by the moment, overwhelming in most instances any ability to simultaneously consider the 'big picture' structural aspects and implications of that action. Any kind of pattern or structure that may be prefiguring such uniquely adaptive action can only be perceived 'top-down' from a temporal and perceptual distance, by observing many past performances – a distance in which the real-time, first-person perspective is lost (Alkemeyer et al., 2017). The collective, situational context of all of the individual actions only becomes visible from afar, and yet disappears again once approached. This is why both Alkemeyer et al. (2017) and Nicolini (2009b, 2012) offer a methodical 'zoom in-zoom out' empirical method in response to this dynamic, to allow each perspective to systematically and iteratively frame the other.

This dynamic was witnessed clearly in this work, especially in the observation and analysis of the travel planning programme. Each individual commute was different for each office worker – even from one day to the next – each responding to a unique situation each time, yet, in the analysis, a consistent set of factors affecting the collective commute arose thematically and quickly 'saturated'. One may have lived in the outer-north-eastern suburbs of the city, had a physical impairment that limited their

personal mobility, needed to take their children to school two days a week on days where their partner had work commitments and also needed to travel during the work day on some days. Another may have had a straightforward, gentle, 10-minute cycle ride down a separated cycleway into the office almost every day. Each example appears very different in isolation, but the commonality began to emerge only when many such stories were taken into account. But, then, once these stories are reduced to common factors alone, from a zoomed out perspective, the cohesion of each story in its lived context is lost. For example, just considering the factor 'distance' or even 'distance' and 'mode' in combination, fails to account for the richness behind those simple examples. Reinforcing, once again, the exhortation to zoom in and zoom out between both perspectives methodically (Alkemeyer et al., 2017; Nicolini, 2009b, 2012).

The practicescape's activity-context approach, then, in this way takes advantage of the stable extremes of the fully zoomed-in perspective of the situated and embodied acting and the zoomed-out outer reaches of its empirically defined context. Any intermediate normative or teleoaffective forms can then be left to be identified empirically and contingently as part of the research process, without needing to resolve into any kind of single intermediate entity.

Ultimately, any attempt to determine whether modal 'choice' is a 'practice', simply an 'activity' or any other attempt to categorise the nature of the doing in question, was simply a distraction from this research objective. From the perspective of this moment of acting, *other* activities and practices appear as, and can be considered as, some kind of entity – as a noun, to be woven into the context of the doing of that activity in some way. In this way, an act of doing can fully permeate other activities and practices without requiring a boundary to be defined between them. Modal 'choice' does not have to have a line drawn around it that somehow distinguishes it from utility cycling, driving and all of the other everyday practices within the context of which it occurs. To answer the research question, it is sufficient to recognise modal 'choice' as some kind of 'doing' that navigates a highly complex and entangled context of activities, practices, bodies, materials, rules, norms, etc. These only need to be resolved to the extent that they present themselves to the moment of modal 'choice'.

In this way, the doing that any activity or practice entails can fully or partially occupy the same practice 'space' as other practices – coexisting amongst the same factors but without requiring them to be artificially distinguished in some way. The activity – the doing – defines the context of its own doing, therefore, different activities can perform the same or similar factors into different performative contexts. Because, like the practice dynamic, the activity context is performatively defined, its existence must be centred on that central performance of the action relative to the research question.

Rather than trying to define practice entities in terms of the nouns that constitute them, I propose instead that the action itself should always be the final arbiter of what defines its context – empirically. In such a manner, closely related activities and practices can coexist among very similar factors, however, it is always the central activity that weaves them together into a unique horizon of intelligibility. Just as the same characters, objects and settings within a story can be woven into very different narratives, in the same way, each activity weaves the factors within its context into its own unique narrative of intelligibility.

Within the practicescape, (other) practice entities can be recognised and named, but that does not require that the activity of modal 'choice' then, in turn, also be somehow named and defined as a practice entity itself. For the purposes of the research, it simply is whatever it is: its complexity is contained and defined in the real world and only needs to be empirically observed. Its framework can be thematically analysed, as in this research, and the nature of its horizon of intelligibility constantly probed, but it is too complex to be neatly resolved into some kind of theoretically convenient and compliant entity, and attempts to do so would distract from the research objectives. Hence, the genericising of the language into simply 'activity' occurring within a practice 'context' – the activity identifies its own practicescape made up of its own weaving together of the stuff of practices, but without requiring single practice entities to be defined.

6.2.3 Is a practice entity needed to apply practice principles?

Table 1, back in Chapter 2 (on p. 27), listed the key principles of most contemporary practice theories, such as practical intelligibility, performativity, normativity, practical understandings, materials, bodies, etc. The practicescape approach satisfies almost all of those principles – unsurprisingly, given the similar fundamental dynamics. Activity still occurs within a context of other practices. The only major difference is the lack of requirement for a single, normative practice entity. This has implications for the practical application of the practicescape approach.

The first implication is that it allows for a more generic application of practice theory principles to include activities beyond the more formalised occupations and pastimes described earlier. As noted, many of the examples of practices in the literature are professional practices or named sports or pastimes, potentially with associations of practitioners that have formed around the practice (Warde, 2013). For an idiom that claims to represent the "site of the social" (Schatzki, 2002) in terms of "practices all the way down" (Feldman & Orlikowski, 2011, p. 1250), it would seem that it should also be able to encompass the more dispersed and less structured activities of daily life as well. The

practicescape approach responds to this by simply requiring a central activity of interest and a context that it defines empirically. This still allows for intermediate entities like practices, but does not make them a requirement, thereby allowing for much more partial, situated and contingent patterns, without requiring any single 'entity' to be resolved – unless it is central to the research question.

A second, and related, implication is that the practicescape approach favours pragmatic intervention targeted at very specific activities or practices over more academic pursuits seeking broader and deeper understanding of phenomena. Removing the requirement for a practice entity to be identified means that practice principles may be applied, in particular, to interventions motivated toward sustainable ends, such as in this work. This potentially allows for a more instrumental, change-based applications of the principles, where pragmatic, practical change is prioritised over more academic applications. A more instrumental approach to change may adopt a 'trial and error' approach to practice, where understanding of an activity or practice need only extend to identifying opportunities for potential intervention, followed quickly by rapid evaluation of the impact.

Feldman and Orlikowski (2011) identify three approaches to practice theory – "empirical", "theoretical" and "philosophical" – which may explain this distinction. The empirical focuses on the detail of what people do at the level of everyday coping; the theoretical addresses the wider dynamics that explain that activity; and the philosophical asks the deeper questions of how such activity shapes and forms social realities. Many of the contributions to the practice theoretical literature are of the latter "philosophical" variety, attempting to account for the nature of the social world and its phenomena in practice terms. In that context, Nicolini's exhortation to convincingly account for why practices are one way and not the other, and how local instances emerge from the global, etc. (Nicolini, 2012, Ch. 9) makes more sense, as the concern is more sociological in nature. Some form of entity is important as it can be used to explain social institutions and the ordering that maintains them.

By contrast, a sustainably motivated desire to encourage switching between practices has a far more instrumental focus. The focus tends to fall more at the "empirical" end of Feldman and Orlikowski's typology, with an interest primarily in specific outcomes, such as more people cycling and fewer driving, adoption of water saving measures, building smaller houses or eating more healthily, for example. In these settings, the more desirable practice or activity that is being promoted usually already exists and the primary focus is on increasing the prevalence and frequency of that alternative, more favourable form. How and why the competing practices came into being and why they are that way and not some other, is typically only of importance if it can yield some insight that contributes toward the desired change. This means that, as practice switching is often the desired outcome, it is

the *relative* differences between the favoured and discouraged practices that are of most interest, rather than their absolute forms.

In such an instrumental context, then, where the desired and discouraged practices already exist and changing the frequency of their performance is the goal, accounting for complete practice entities has limited efficacy. As in the case of modal 'choice' the activity of interest may not qualify as a practice in its own right, but the research objective does not demand that a practice be identified. Similarly, the competing practices being switched between do not require a full enumeration – only investigation to the extent that they are relevant to the context of the activity in which they are applied. So, the vocabulary and dynamics of practices are applicable, however, the singular practice entity was not required in this setting.

6.3 The practicescape in three analytical moves

The activity context approach, then, has potential theoretical compatibility with the fundamental dynamics of the practice idiom. This section explains the practicescape's activity-context research methodology in more practical terms, using this research into the promotion of utility cycling as an example. In a nutshell, the practicescape approach aims to take a central activity, or set of activities, of interest, empirically identify a context of factors within which the activity takes place and then examine narratively how those factors are made sense of within that context. This process can be summarised in three key analytical moves:

1. Identify the key activity or set of activities of interest and place them in the practice context – the 'practicescape'.

2. Identify the 'utility horizon' – identify aspects of the activity context by thematically following what works

3. Engage with the 'utility envelope' – narratively explore the dynamic arrangements that work

These three moves are likely to be initiated in the order in which they are presented, however, they will also overlap considerably throughout the research process and all should continue to be revisited throughout the research process and will occur simultaneously.

It should be noted that the practicescape approach is similar to the "zoom in-zoom out" process proposed by Nicolini (2009b, 2012), but differs in a number of ways. He also describes this as occurring within three "movements" (2012, p. 219): "zooming in" on the local accomplishments of a

practice; "zooming out" by tracing the spatio-temporal relationships between practices and their elements; and then producing a "convincing" textual account of the process. The practicescape approach differs in that it is intended to provide clearer methodological guidelines for identifying more targeted and instrumental interventions promoting practice switching, rather than attempting to account for whole practices (the case on the right of Figure 30 on p. 196). To this end, it aims, first, to identify the true activity/activities of interest relative to the research objectives.[31] It then zooms out to identify a context to the acting (a 'utility horizon') and then zooms in again within that context to follow individual narratives (the 'utility envelope') – although both moves may potentially occur recursively and simultaneously. The process identifies the activity of interest, then builds a conceptual 'arena' for that acting within which to make sense of individual performances. This sets up an analytical framework for narrative accounts, without constraining their possible expression.

These three analytical moves will be introduced conceptually in the remainder of this section in the context of the promotion of utility cycling.

6.3.1 Identifying the activity of interest

The first, and most critical step for the success of this research approach, is to identify the central activity, or activities, of interest to the research. This is a process of reviewing the practice landscape being studied, in light of the research question, in order to identify the actual activities and practices that are relevant to that question, and the ways in which they are relevant to that question. As discussed earlier, a key lesson from this research was that, although an increase in utility cycling was the desired *outcome*, counterintuitively, this was not in fact the central focus of the work. Instead, modal 'choice' was found to be the activity that had most bearing on the research objectives. This clarity, however, took some time to emerge, later in the research process. This section describes how this realisation could have been arrived at earlier through a more systematic application of the practicescape process.

This first move demonstrates a key aspect of practice theoretical research, or indeed any social research: that the way any practice or activity of interest reveals itself is always fully related to that very analysis – the nature of the activity and its context can never be determined in any absolute sense

[31] This emphasis was prompted by my own initial lack of clarity that I was actually focusing on utility cycling as modal 'choice' rather than as a practice in its own right.

that is independent of the way in which it is engaged with. The research practice itself makes an "agential cut" (Barad, 2003; Nicolini, 2012, pp. 170-171) into the phenomenon of utility cycling as modal 'choice', so that the way that the practice presents itself cannot be considered independently of the research question through which it is being investigated (Shove, 2017).

I initially engaged in this research simply looking for some kind of 'insights about improving cycling as a mode of transport' by investigating utility cycling through a practice lens. However, cycling is a vastly complex human endeavour, and without further refinement, the practice lens still simply presents *all* of that complexity – only, from a practice perspective – which can quickly lead to being overwhelmed. Instead, my research question needed refining and interpreting within the context of utility cycling and its related practices. Engaging in such a process from the beginning may have revealed earlier that modal 'choice' was in fact my focus.

This suggests, then, that the first step in any application of the practicescape approach must involve a very clear reflection upon the true nature of the research question, refined in concert with a broad mapping of the overall activity context. This process should, of course, continue to be refined throughout the research process as understanding of the activity context improves, especially in cases where the practices in question are unfamiliar to the researcher. While this is in fact a process of 'zooming in' on the central activity/ies of interest, it begins with a 'zooming out' to the wider practice landscape at the same time, in order to ensure that the most relevant activities are being considered to zoom in upon – in other words, zooming out to ensure that a key dynamic has not been overlooked. This is consistent with the call by Blue and Spurling (2017) for "a version of practice theory that begins with complexes of practices and not 'a practice'" (p. 36), and their emphasis on interrogation of the "connective tissue" that holds webs of practices together.

In this study, this process involved identifying and mapping the various practices and activities that are associated with utility cycling in any way and relating this to the research question. The outcome of this process, depicted in Figure 31, shows that there were three clusters of practices related to utility cycling for this research – namely, the modal practices, recreational cycling practices and other daily practices. Utility cycling is a form of everyday transport and so it is therefore closely related to the other modal transport practices, such as driving, walking and taking public transport. At the same time, as a type of cycling, utility cycling relates to other forms of cycling for recreation and sport. And finally, in keeping with practice theory tradition, there is a recognition that any practice is situated within a context of many other everyday practices: as a mode of everyday transport, utility cycling

interacts with, enables and constrains a large number of other typical daily activities and practices in a number of ways.

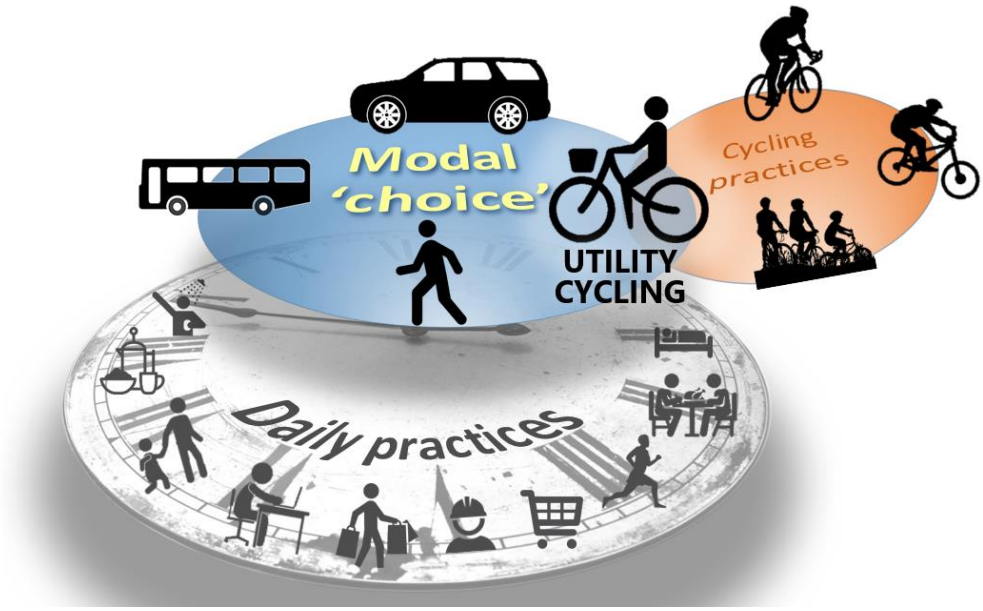

Figure 31: The practice context of utility cycling as a modal 'choice' – relative to other cycling, transport and daily practices.

It is important to note that the mapping out of the practicescape – practice landscape – of utility cycling is carried out in this way to provide a useful overview of the research setting, but, although it is depicting practice *entities*, this is *not* for the purpose of defining or bounding those entities. This move is solely for the purpose of refining the research question in the context of the practice landscape, so that research attention may be more appropriately targeted by avoiding overlooking important relations between practices. This process of zooming out intentionally broadens the attention away from the details of the utility cycling alone and out into the field of its wider practice relationships and "connective tissue" (Blue & Spurling, 2017).

The organising principles of practices, identified in Chapter 1 (in Table 1 on p. 27)), can be used to assist in this systematic traversal of the relationships between practices and the research question. Of the organising principles of practices, Schatzki (1996, 2002) describes practical intelligibility as the most important, driving dynamic of practices, with teleoaffective structures having the most significant impact upon that. Reviewing the practice landscape depicted in Figure 31 in light of these two principles supported his assertion.

Considering practical intelligibility means asking where sense-making is being applied within the field of practices. This was revealed most clearly in the travel planning programme, where it became apparent that, in their attempt to make their everyday commuting options work for themselves, the

participants were in fact engaging in the act of modal 'choice'. The sense-making was directed almost exclusively to a process of weighing up the different modal options in an attempt to determine which of the modes would work best in their circumstances. This indicated that the first level of sense-making in fact applied *between* the modes. This realisation alone led to a much more precise research focus, without the distraction of attempting to account for utility cycling in isolation. Intentionally broadening the research focus in this way, exposed utility cycling as a desired *outcome* of the research rather than the primary activity to be investigated – which was modal 'choice'.

Considering the teleoaffective aspects of the practices was also particularly illuminating. Teleoaffectivity refers to what an activity is for and why it matters (Schatzki, 2002) and, in this research, the teleology – what a practice is *for* – was particularly useful in understanding the relationships between the practices of utility cycling and driving (Spurling & McMeekin, 2015, p. 88). Teleology both united and divided some of the practices. It united the very distinctive modal practices. Despite being very different mechanical and embodied experiences, the common end of being *for the purpose of transport* brought these distinctive modal practices into direct competition with each other – in terms of space on the roads and time and attention within daily lives – because they are alternative means of achieving the same basic end. Asking further what all of these modal practices are for (as per Spurling & McMeekin, 2015, p. 88), linked them collectively to the other everyday practices which they enable and within which they take place and attain meaning. So the relationship of the modal practices to other daily practices played an important role in shaping what each trip would be for and why it would matter, thereby playing a significant role in shaping the relative utility of each modal practice. Finally, teleology was also important in distinguishing *utility* cycling from *recreational* cycling. Despite the very similar mechanical and embodied expression of each practice, the very important distinction is that utility cycling is conducted, by definition, for the purposes of transport – a purpose other than the cycling itself. By contrast, recreational cycling is its own end – the cycling itself is the purpose. As emphasised by Shove (2012c), this makes them distinctively different practices and, therefore, it is important when considering utility cycling that the two practices are not conflated. This careful teleoaffective consideration of the practice landscape of utility cycling proved particularly useful in clarifying the research focus for this work and became useful for considering the practicescape in the following analytical move.

This first analytical move revealed the practicescape of modal 'choice' – the practice landscape within which modal 'choice' takes place. Although revisited and refined throughout the research process –

this move sets the scene for the practicescape's activity-context process: a specific moment of acting has been identified and situated within a wider practice context.

This process may be especially applicable to research projects similar to this one, which have an interest in encouraging switching between existing practices, especially from practices that are less desirable from a sustainability and/or public health perspective to more desirable alternatives. In such cases, as this research demonstrated, relativity between the practices becomes more important than resolving or accounting for the complete practices in their own right, and it may be possible to boil this down to a single moment or key moments of 'choice' between the practices. The activity-context focus of the practicescape approach is designed precisely to identify such moments and the situational context in which they occur, from the perspective of a person who is fully immersed in that moment (as opposed to the luxury of the removed, atemporal perspective of the researcher). As well as the directly competing activities or practices, this moment of 'choice' will also occur within a practicescape – a wider backdrop of the many other everyday activities, practices and events which that 'choice' is having to navigate.

It is this moment of acting that became the centre of the research, from which the following analytical moves were shaped, therefore, it is important to continually revisit and revise this step throughout the research process. The aim of this move is to look beyond the details of the desired activity or practice alone to what is really pertinent to the research question in the context of the moment of acting. Clearly identifying this moment or moments is key, because it will form the central vantage point from which the wider, performed context is identified.

6.3.2 Utility horizon – the activity context of 'what works'

The second analytical move, which is closely related to the first, involves identifying the performative context within which the central activity of interest takes place – which I am calling the 'utility horizon'. This utility horizon is a more precise, empirical rendering of the practicescape, relative to the research objectives. It is the context that is woven together performatively by the central action of interest identified in the previous section and empirically observed through the research. It is the diverse set of factors that are involved in the activity and, therefore, through which the activity navigates. In this research, the utility horizon was observed to be the set of factors identified thematically from investigating many accounts of the modal 'choice' to utility cycle.

In the case of a practice switching focus, as in this research, the utility horizon comes to represent the context in which alternative practices are compared – a context which may include other practices and activities. Modal 'choice' was determined to make sense – or to 'work' – against the backdrop of other everyday activities, such as work, child-rearing, socialising, shopping, running errands, attending events and appointments and the general coordination of daily schedules with others, for example. The utility horizon of modal 'choice' is then the context in which 'choice' of whether to take the bike or the car is resolved, for a person situated, in real time, in the thick of everyday life.

I have dubbed this context of what works the *'utility horizon'*: *'utility'* based on the observation from the travel planning exercise that people base modal 'choice' upon *what works* for them, and *'horizon'* because it represents the wider extent in which the central activity becomes intelligible and can be made to work. In this work, I define utility as *what works* for people in the moment that they head out the door, where 'working' is considered in a broad, practice theoretical sense to include both 'hard' functional and material factors and 'soft' human and social factors. So, for example, the bike might 'work' for someone if it saves them time, money and parking hassles – in the traditional conception of utility in the transport literature (e.g., Aldred, 2015; Maat et al., 2005). But travelling by bike also 'works' if it supports their personal image and sense of identity, if it satisfies their desire for physical activity or if they simply enjoy the journey.

In this way, utility is essentially a rebranding of practical intelligibility into more familiar transport literature parlance. In transport modelling, utility is defined as "an abstract measure of the degree to which the alternative satisfies their needs or desires and matches their preferences" (Schwanen & Lucas, 2011, p. 9). The word 'utility' has come to be associated with economics and concepts of rational choice, made by the mythical *homo economicus*, but practice theory roundly rejects ideas that society is somehow guided by rational choice, whether in pursuit of utility, or any other universal concept (Schatzki, 2002, pp. 231-232; 2003; Shove et al., 2012). However, the key distinction is that economic and transport modelling approaches assume that individuals *rationally* work to "*maximise* the utility they obtain by participating in an activity" (Maat et al., 2005, pp. 37-38, emphasis added), with the aim being to rationally and intentionally trade off the utility of completing a trip against the costs, or disutility (distance, time, financial cost, etc.), of making the trip. By contrast, practice theoretical approaches decentre and dethrone the sovereign individual, meaning that the individual is not solely responsible for assessing utility and is placed, instead, into complex and dynamic relationship with a wider social and material world.

The concept of utility itself, as an unexplained "abstract measure" of satisfaction and the meeting of personal needs, is remarkably similar to Schatzki's concept of practical intelligibility (Schatzki, 1996, 2002), which is a similarly mysterious force, remaining indeterminate until after the act has already happened. Adopted with a practice theoretical tolerance for indeterminacy, utility appears quite compatible with such concepts, while having the advantage of being a more familiar term in transport and policy settings and being especially well suited to the application of comparison between transport options – which are the modal practices in this case. Additionally, utility, as 'what works', adds a slightly more functional emphasis to the sense-making associated with intelligibility, which suits the empirically observed functional emphasis in modal choice – while still allowing room for 'softer' human and social aspects.

With utility conceived of in this way, then, the utility *horizon* can be seen to be equivalent to Nicolini's "horizon of intelligibility", which contains the "fields of action intelligibility that [...] inform participants about what makes sense for them to do next" (Nicolini, 2012, pp. 172-173). The utility horizon is determined empirically by following what makes sense to do – or *following the utility* – outward from the central activity of interest through many narrative accounts of what works for the person in their moment of acting. It is the horizon of diverse factors that come into play when following what works, or not, for people engaged in the central activity. In this way, the utility horizon can be thought of as the "arena of action" (Schatzki, 2005, p. 470) in which the central activity not only becomes possible functionally, but becomes intelligible – making sense and gaining collective meaning.

It is important to note that, while the utility horizon could be thought of as somehow containing and framing the *analysis* of the practicescape, it should not be thought of as constraining the *performances*. The extent of the utility horizon is always observed empirically, meaning that if a performance is observed that falls outside of its current form, then it is the utility horizon that must shift to accommodate that performance, not the converse. Unlike the normative practice entity, the utility horizon does not play a role of arbitrating upon 'right' and 'wrong', or 'acceptable' and 'unacceptable', action (although it may well influence that action). Its role is to *analytically* contain and frame the range of *observed* actions that are intelligible with respect to the activity of interest and the research question, not to delineate what is possible. The observed practising always has the last word.

In this research, the utility horizon was represented by the broad array of factors identified thematically as affecting modal 'choice' and discussed in the previous findings chapters. In this research, the modal comparison in Chapter 4 revealed the first set of comparative factors (distance, load carrying, safety,

etc.) that were classified as showstoppers, challenging factors, car stoppers, etc. (in Table 5 on p. 101). In Chapter 5, the zoom-in via the interviews on how the utility cycling practice is carried out on a day-to-day basis revealed a larger set of factors affecting modal 'choice' to travel by bike (in Table 9 on p. 149). These lists of factors emerged through thematic analysis, with a practice sensibility, of the raw data. I found that thematisation led by observations of the practice itself was more helpful than attempting to apply a pre-existing categorisation, such as the materials, meanings and competences of Shove et al. (2012). This is partly because it was difficult to allocate many of the factors into those categories, but also because it was difficult to discern any particular sense-making from such a grouping.

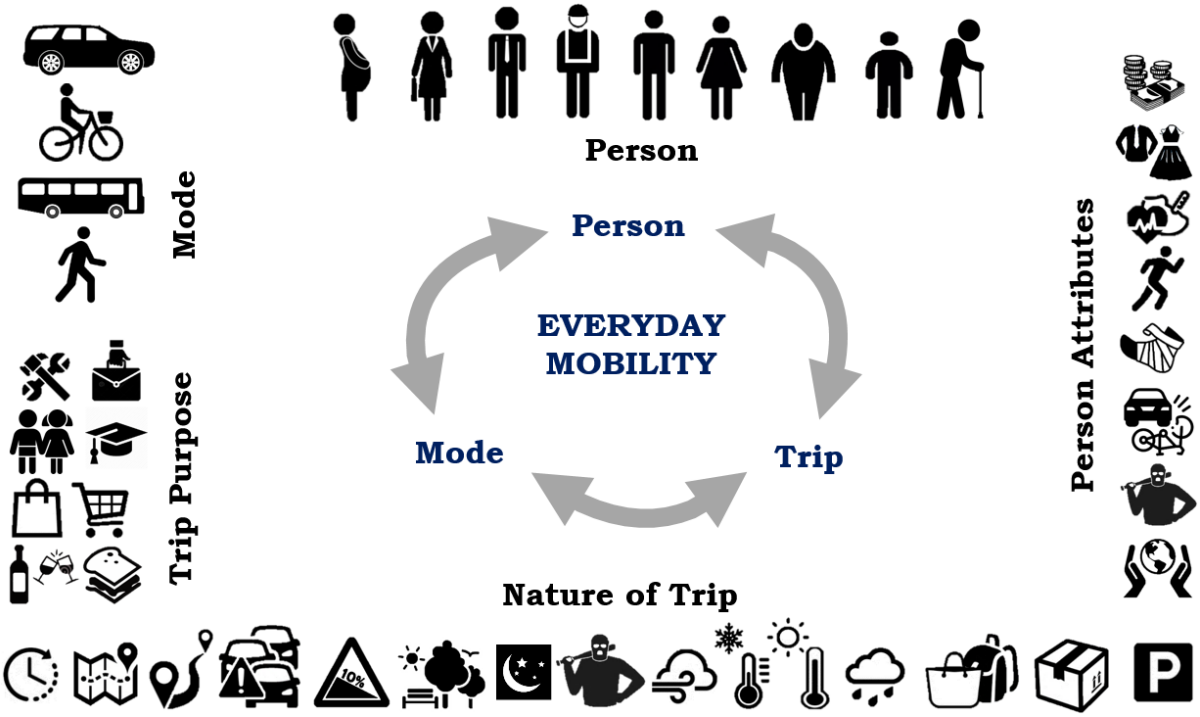

Figure 32: The utility horizon – the 'arena' for everyday modal 'choice' – involving a person, their attributes (generally, and at the time of the trip), the nature and purpose of the trip and the mode of transport engaged.

Allowing practice-inspired themes to emerge in such a way, as dictated by the data themselves, allowed for the emergence of a more empirical configuration of the factors. These factors are represented schematically in Figure 32, grouped as attributes of a person, trip and mode. What I observed in each account in the fieldwork was a *person*, each with their own unique set of attributes, contemplating a *trip* or journey, also with its own set of demands and attributes, and then trying to match all of these to the capabilities and characteristics of a particular *mode of transport* or conveyance. This dynamic is depicted in the centre of Figure 32, where everyday mobility is represented as a set of factors coming together in an interaction between the person-trip-mode triad

described above. The icons around the perimeter of the image schematically represent the range of factors identified thematically in the previous chapters, grouped under the person-trip-mode categories. The icons shown are a diagrammatic representation of the factors more completely listed in Table 5 and Table 9 – and it should also be noted that they may include abstract concepts, such as status, identity and personal values, for example – not only concrete factors easily depicted as an icon.

These concepts formed the 'arena' within which modal 'choice' could take place. In this way, the utility horizon, as the arena to the acting, contains and frames the central acting by describing the range of resources it draws upon, but, crucially, it does so without limiting or constraining the ways in which it may be performed. Just as the chess board contains the game of chess or the football pitch contains the game of football, the utility horizon includes all of the resources required to 'play the game' but does not limit the gameplay that is possible within that arena.[32] The ways in which chess or football can be played are limitless. The chessboard and football pitch, along with all of the associated rules and paraphernalia, allow the full expression of the game, yet frame the acting in a way that helps to contain the analysis of that acting.

It is also important to note that the utility horizon, as the context to the acting, like the central activity of interest, also exists relative to the research context of the research question. The way the utility horizon is empirically bounded will depend on the research objectives. For example, if mode switching were considered from a purely political science perspective, then the utility horizon would have to follow the utility of everyday modal 'choice' out into the realms of political accountability, power dynamics and governance – an extent not explored in this research.

Finally, it should also be stressed that the identification of the utility horizon co-occurs with both the previous analytical move of identifying the activities of interest and the following move, which follows the utility narratives of how people make everyday travel work for. This is because the success of zooming in on the activity of interest can only be determined by zooming out to follow the utility of that acting into its widest contextual reach. Following the utility outwards from the activity of interest determines the utility horizon context, but that wider perspective also helps to identify which activities are in fact relevant to the research question and whether any aspects are missing or relevant to the

[32] The key difference between this analogy of chess or football and the utility horizon is, of course, that the rules of each game may prohibit certain actions, while, as noted earlier, it is the observed actions that define the extent of utility horizon, not the converse.

research. The zoomed-in and zoomed-out extremes of the activity-context continuum must be resolved iteratively, considering each simultaneously – or at least consecutively, in quick succession (as proposed by Alkemeyer et al., 2017; Nicolini, 2009b, 2012) – relative to the research context of the research question and objectives. Tentatively following each activity of interest out into its wider context helps to determine if there are other factors that may have been missed.

6.3.3 The utility envelope – narrative assemblages that work

The final analytical move forms the heart of the practicescape approach. The aim of identifying a central activity of interest and a corresponding utility horizon is to set the scene for the analysis of narrative assemblages of elements that work – what I am calling the 'utility envelope'. The previous analytical moves identify the core activity of interest and then build an arena around it; the current move sets that context and motion so that the acting is allowed to happen within that framing. The arena has been laid out and the gameplay has begun – chess pieces moved and the football kicked off. The real work of analysis then begins in earnest, attempting to find patterns in the ways in which people weave the factors of the utility horizon into their real-time acting.

The utility envelope is the unit of analysis of the practicescape approach. The term 'utility envelope' reflects a dynamic shaping of the factors at play within the utility horizon.[33] It is a configuration of factors – a subset of the utility horizon – within which each mode of transport works, or makes sense to do, for a particular person within a unique set of circumstances. The question the traveller faces is the extent to which that utility envelope can meet the demands of the trip that they need to make.

As Figure 33 illustrates with respect to modal 'choice', whether a trip works or not is determined by whether or not the arrangements of factors form a narrative whole that makes sense to the person in the moment of travelling. In the analysis of the data for this work, many possible combinations of factors were identified, however, it was not until these were woven into complete, coherent *stories* that they *made sense*. The arrangements of factors that work for a particular trip make up narrative wholes that can vary from situation to situation and from person to person and, therefore, the modal

[33] The word 'envelope' is intended in the engineering sense of "the set of limitations within which a technological system, especially an aircraft, can perform safely and effectively" ("Envelope," n.d.), as in the phrase to "push the envelope". For example, the 'flight envelope' or 'performance envelope' of an aircraft refers to the limits of performance, such as rate of climb or rate of turn, within which an aircraft can safely perform. The 'working envelope' of an industrial robot is the space in which it can reach and operate.

practice that *works best* in that situation will also vary. This means that a change in only one of the factors – for example, a change in the weather, the need to transport someone or simply running late – could completely change the outcome of a trip.

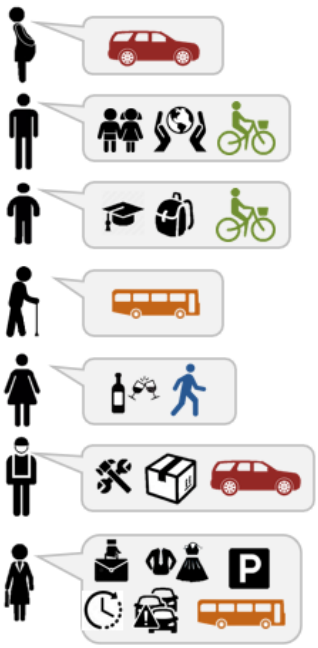

Figure 33: The narrative sense-making of modal choice

In the case of the interviews, the many thematic factors identified in a single interview only began to make sense when woven into an overall, coherent narrative of that person and their utility cycling. In a similar way, each single consultation with an office worker in the travel planning programme only came together in the overall context of their whole individual commuting story. It is only in such stories – of individual trips and of individual practitioners – that the key to interpreting practice switching can be found. The factors cannot be interpreted independently of the sense-making of the moment, which hangs together through whole narrative accounts. Narratives do not make for a convenient 'unit of analysis'. By their very nature, they are resolutely human in nature and strongly resist simplification, automation or reduction into constituent parts. So, any patterns of collective sense making observed through an analysis of utility envelope will often be highly qualitative and contextual.

It is in this way that the utility horizon is determined empirically by observing or listening to many accounts of the utility envelope. The context identified as the utility horizon is laid down one instance of the utility envelope at a time, slowly – and always partially and incompletely – revealing an overall arena of acting. As described in the previous section, it is ultimately observations of the utility envelope that determine their own utility horizon. The limit of what is possible is always determined empirically – the actual doing itself is always the arbiter of possibility with respect to activities or practices via this approach. If something unique is observed to be done, and it qualifies as an expression of the activity of interest, then it is the utility horizon that must expand to accommodate that acting, rather than the observed activity being excluded in some way. The utility horizon frames the observed instances of the utility envelope.

The utility envelope applied to the relative utility of modal practices

The image of the utility horizon of modal 'choice', depicted earlier in Figure 32 (on p. 211) showed that the intricacies of everyday personal travel practices – from the perspective of the person travelling

– can be described in terms of the basic interaction of a person, trip and mode. In the language of this analytical move, this means that all configurations of the *utility envelope* of what works for everyday personal travel can emerge from this dynamic of factors. A person has a need or a desire to travel somewhere – which is the person-trip combination – and that person then employs a mechanical conveyance – or not, in the case of walking – to (attempt to) fulfil the journey. A large portion of everyday transport involves a process of matching the capabilities and features of the modal practice to the needs of the person-trip (an instance of a person making a trip). So, everyday transport practice is actually a process of 'choosing' between modal practices in a context that is heavily prefigured by the utility horizon, as the context to the act of modal 'choice'. In the case of the travel planning programme, the participants could be observed to be essentially 'trying on' different modal practices to see which one was the best fit for them – or which one *worked* for them – in their unique situation.

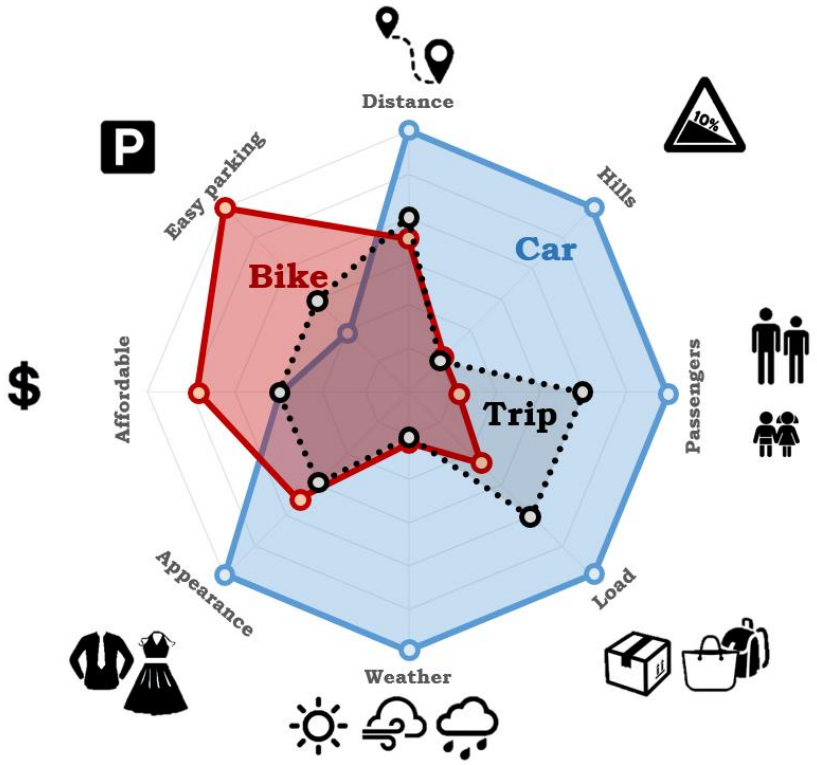

Figure 34: A schematic representation of the utility envelope, where the needs of a particular trip are matched against the capabilities of the car and the bike.

This application of the utility envelope is best explained by way of an example. The distinctiveness of utility cycling and driving as modal practices is well suited to demonstrating a process of selecting between already-existing practices. Figure 34 shows a schematic example of how the utility envelope

of the bike and the car may be considered relative to the needs of a particular trip.[34] It uses a simplified set of eight factors as an example of a set of factors that could be salient in a particular trip setting. For the black dotted trip line, the radial distance from the centre represents a qualitative assessment of the level of need for that factor. So, in this case, the traveller has a need to cover a moderate distance, carry passengers and a moderate load – perhaps they need to take two people and their luggage to the airport. As the terrain is flat and the weather is fine, the demands in terms of these factors are low. The (car) parking demands of this trip are low to moderate, as are the concerns about cost and the need for tidy personal presentation.

The red and blue polygons then represent the capabilities of the bike and car, respectively, to meet those needs – their utility envelopes. The bike (with this particular rider) can cover moderate distances, but it is poor at dealing with hills, passengers or bad weather, but this bike does have some carrying capacity. It is also very easy to park, cheap to operate, but can have a moderate impact on the standard of personal presentation, through getting hot and exposure to the weather. The car, consistent with the observations in the findings chapters, is dominant in most aspects of everyday transport and therefore sets the performance benchmark for most factors. As a result, most of the measures of capability for the car are shown at the full level of capability. The only exceptions for the car in this example are ease of parking and affordability, where the car has greater limitations than the bike.

This representation is especially useful for comparing the *relative utility* of the competing modes. Represented in this way, it immediately becomes clear when either of the modes is capable of meeting the demands of the trip: whenever the black trip polygon fits fully within one of the modal polygons, it indicates that that mode is capable of delivering upon those needs, i.e., that the demands fall within the capacity of the utility envelope. This means that the larger the modal polygon, the greater its ability, generally, to deliver on trip demands. Where the needs of a trip fit fully within the utility envelope of one mode, but not the other, then the modal 'choice' is straightforward. However, in the example in Figure 34, the needs fall (just) outside of the utility envelope of both modes, which means that a certain amount of negotiation is required on each of the dimensions. In this case, the car is likely to be chosen because, where the needs of the trip exceed the utility envelope of the bike – for

[34] It should be noted that this is a schematic, qualitative representation of the utility envelope for illustrative purposes only and the representation in graph form does not suggest that these dimensions could be or should be easily quantified.

passengers and load carrying capability – these qualify as 'showstoppers' and no amount of willpower will change the inability of a standard bike to accommodate them. Ease of car parking, on the other hand, does not represent such a hard constraint, and the traveller is likely to accept a little difficulty parking in exchange for the fundamental ability to carry the passengers and their load.

This example presents some of the flexibility and interactivity that exists within the utility envelope. While Figure 34 represents each factor with a single point for each mode and trip, in reality, each point is much more complex. First, as in the example above, some factors are more flexible than others. For example, transporting passengers and their luggage on a bike was a hard constraint – or 'showstopper' – while paying for parking, was annoying, but still possible, and therefore allowed more leeway. The second aspect is that the factors can interact dynamically with each other and the needs of the trip, potentially changing in real time. For example, getting hot and sweaty on a bike can be a problem, but the impact depends upon other factors. Distance, headwinds and hills can all increase the potential impact of body heat by making the factor itself – body heat – worse. In a different way, factors such as the type of clothing worn and a requirement for tidy personal presentation can have an impact by making the ramifications of getting too hot worse – as interviewee Katie, used to everyday, casual cycling, discovered when getting too hot biking to a funeral in formal clothing. Additionally, there are constant dynamic uncertainties, such as variable weather and traffic, running late, changing mood and energy levels or even simply a change in plans. So, very rarely is one factor completely independent of the others, and often the interactions can be subtle, complex and dynamic.

The utility envelope approach, however, should not be misinterpreted as a rational, intentional evaluation of factors. As described earlier, the concept of utility on its own is compatible with practice theory, but rational *maximisation* of utility is not. While the travel planning programme represented a unique opportunity to observe how people consider the factors affecting a single trip, it was a very intentional situation, where we sat down with each individual and systematically worked through their options. Two aspects of the utility envelope approach address any misconception that it is a rational process: first, the factors that enter awareness are highly variable and in no way include all of the possible factors and, second, modal 'choices' are not always made before every trip – many trips will be made unthinkingly and based on past experience or habit and, therefore, the utility envelope may not feature at all, or may do so only over an extended period of time.

While Figure 34 illustrated the basic concept of the utility envelope, it was also a little simplistic in that it only showed one example consisting of eight factors. In practice, I observed that the utility envelope was far more dynamic and changeable than merely a single set of factors. Reflecting its grounding

in the principles of practical intelligibility, the factors at play are those that come into the awareness of the person travelling, in the moment of modal 'choice'. The factors in the utility envelope are drawn from within the utility horizon depending upon what is salient for the sense-making of the person in the moment of travel. This set of factors will change from one situation to the next, and may even change from one moment to the next in response to changes in situation, person or person's response to the situation. As a representation of intelligibility, the utility envelope can change quickly and unexpectedly as situations unfold and potentially change in real time.

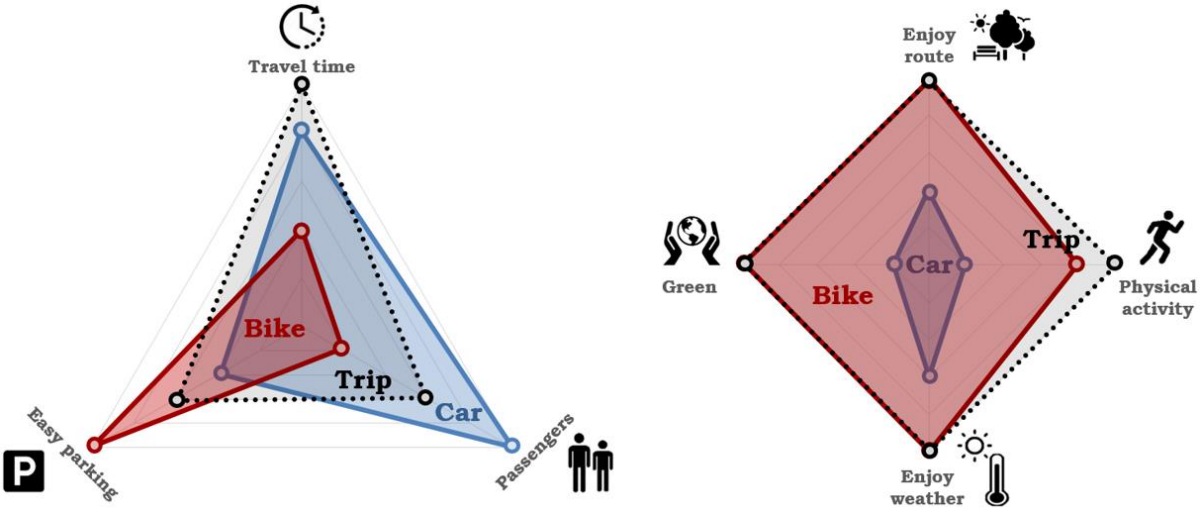

Figure 35: Examples of different shapes of the utility envelope in different situations

Figure 35 shows two examples of how the utility envelope may expand or contract in different sets of circumstances. The example on the left could represent a situation where a person is late in taking their child to an appointment. All that matters for this person in this moment is being able to get their child (passenger) to the destination as fast as possible (travel time) with minimal parking delays. Cost, environmental concerns, desire to take a pleasant route and enjoy the trip, etc. are all out of mind. In that very moment, for that person, the utility envelope has collapsed to these primary concerns. In this example, the car (blue polygon) is likely to be the best option for meeting these needs (black dotted line). In the scenario on the right, however, this could represent a person who is very relaxed and is wanting to get some exercise and enjoy a pleasant route on a nice day, while living up to their environmental values at the same time. In this case, the bike delivers much more capably than the car, because it allows an active, low-carbon enjoyment of the route to a much greater extent. The aim of these examples is to show how the utility envelope can change on the basis of a person and the circumstances. For example, the case on the right could quite easily change to quickly resemble the one on the left if that person suddenly realised they had lost track of time and were now

also running very late. The utility envelope is a highly changeable and dynamic construct, fully subject to the vagaries of situated human intelligibility.

In addition to allowing for variability from moment to moment, this utility envelope approach avoids misinterpretation as rational choice by recognising that the utility envelope does not have to be applied intentionally or completely before every trip. The examples above represent situations in which the factors described come to the direct attention of the person travelling. However, it is likely that there are many situations in which no such intentional consideration is made. For regular trips, which have been made many times before, or are very similar to other trips made before, it is likely that the traveller simply recalls from past experience what has worked before and repeats the same modal 'choice' with little active consideration: if it has worked many times before in this situation, it will very likely work again this time too. This was demonstrated in the interviews with regular cyclists, who were readily able to recall the types of regular trips that they would make by bike as well as those that they would make in the car. In the same way, in the travel planning programme, the commuters were very aware of what mode worked in what situations, having made the trip into work so many times, so that in most cases the mode employed was a matter of recall and familiarity rather than conscious deliberation.

In this way, given that everyday situations typically do not change radically from one day to the next, it is unlikely that the utility envelope will be consciously engaged with before every trip, nor that all factors will be considered in a single sitting. In other words, it is very unlikely that many people would, on a day-to-day basis, consider their options as intentionally and carefully as we did during the travel planning programme before every trip to work, the shops or other familiar destination. However, it is possible that these same factors will be considered *over time*. If a traveller begins to notice that the car does not work for a particular trip as well as it used to, due to congestion or lack of parking say, then it is more likely that they will begin to question their options.

In this research, participants were very aware of the details of their everyday travel and were very aware of when circumstances had changed, especially when it affected the overall utility of their usual mode. For example, travel planning participants were very aware of the impending change in their regular commute and were anxious to talk to us, yet in the follow-up exercise, after they had relocated to their new office, they were much less enthusiastic because they were now very well aware of what worked and what did not. We also observed that when it was clear that an alternative, non-car mode of transport would work well for a participant – or better than their existing mode – they required little convincing of the efficacy of such a change. The comfort and security of familiar routines may

well cause a time lag and a reluctance to explore alternative options, however, the experience of this research suggests that if an alternative works better, eventually people in such situations will notice and try the alternatives.

Another factor affecting when, and whether, the utility envelope is consciously engaged with is the presence of 'showstoppers' and challenging factors, as identified in Chapter 4. These factors can simplify any kind of decision-making associated with modal 'choice' in that, if they are encountered within the utility envelope, they may quickly rule out a particular mode, or at least make it highly unattractive as an option. Showstoppers may simply rule out options leaving only one 'choice' – usually the car – thereby quickly eliminating any further consideration.

6.4 Summary

One of the primary objectives of this work was to test practice theory as a theoretical framing of the promotion of utility cycling over driving by taking into account the lived experience of practical everyday coping at the same time as larger structural and social factors. To this end, practice theory offers a performative 'flat' ontology that constructs the social world around practices – as regimes of recognisable human doing in a social and material world – that occur within fields of yet more practices. The eponymous practice 'entity' becomes the central 'unit of analysis' of practice theories. It is the recognisable form that arises from certain types of collective doing – a 'way of doing things' – that have a normativity and a history to them so that material and human social elements come to stabilise that doing in that form, and perhaps evolve gradually over time.

However, difficulties can arise with this somewhat challenging concept. An 'entity' held together by doing – a verb – can be difficult to conceive of and to analyse and runs the risk of being conceived of in static and monolithic terms, by conflating the elements of a practice with the practice – or practising – itself. Attempts to define a single, bounded practice entity can miss the point that the primary utility of practice as a concept is as an 'epistemic object' that prompts and motivates investigation into social phenomena, but without ever being fully resolved or contained in itself. Attempting to contain such an object and define it in static terms risks neglecting the performativity at the heart of practices and minimising the important sense-making role that human beings play in bridging the potentially incompatible ontologies and epistemologies involved. Reference to singular entities also has the potential to minimise the diversity of adaptive performances possible within a practice. In these ways, in less experienced hands, practices may be misinterpreted in the type of structural manner which practice theories were formulated to avoid.

Through this research into the nature of modal 'choice' it became clear that practice theoretical concepts can be applied to a space *between* pre-existing practices without the need to fully account for any of the practices involved. The principles of practice theory could be applied to a practice*scape* – as some kind of activity occurring within a wider context of practices and the stuff of practices. It was sufficient to simply empirically examine an activity of interest within its practicescape, relative to the research question, and then 'follow the utility' of 'what works' – the utility envelope – out into its natural context – the utility horizon.

The activity-centric practicescape ontology defines the activity of interest in relation to the research question, which then goes on to thematically define the utility horizon as the context to that activity and research question. The utility horizon is designed to lay out the factors behind a practice as an analytical scaffold for the true role of the analysis: examining the nature of the utility envelope – the narrative sense-making of what works amongst that array of factors. Complex interconnections between factors only become performances of a practice when they *make sense* in some way. The utility horizon sets the scene through which the intelligibility of the utility envelope may be explored, thereby creating an 'arena', or a 'stage', upon which narrative sense-making can take place – stories that systematically *follow the utility* of what works for the person fully immersed in the moment of acting. In this way, the practicescape approach more intuitively represents the idea of acting within a context that supports and shapes that acting, while also evolving in line with changes in the acting.

This construction retains all of the complex dynamics described as occurring between practice-as-performance and practice-as-entity, with the exception that the practice entity is replaced with a wider practice*scape*. This presents change-makers with the same complex, recursive and indeterminate causalities and temporality attributed to practices, and faces all of the same hurdles, however, the intention of the practicescape formulation and its three analytical moves is to make these complexities and nuances plain and more intuitively accessible, even to novice researchers or stakeholders. By resting on natural atomistic and contextual analytical limits, and explicitly acknowledging and emphasising the highly contingent and implicated nature of any research project with its activities of interest, the practicescape hopes to avoid some of the static and singular misconceptions that an intermediate practice entity may elicit.

It was with a desire to explore fundamental social and material change that this work set out to explore practice theory as a potential framing of interventions toward such ends. The following chapter will conclude this work by reflecting upon practices – and in particular utility cycling – and how they may change and be changed in times of such need – especially in terms of practice switching.

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7. Conclusion

This work opened by looking for a theoretical framework that might address fundamental global change in a way that takes into account and respects the lived complexities of everyday lives. Utility cycling was chosen as the focus of this research as it represents well the types of challenges facing the promotion of environmental sustainability. Fossil-fuel based transport has become dominant globally, reaching deeply into all levels of daily life, meaning that any attempts to change car-based transport in favour of active, low-carbon alternatives such as utility cycling, must also be able to reach beyond transport alone and into the lived complexity and minutiae of everyday lives.

However, it was made clear in the introductory chapter that many of the mainstream approaches to the promotion of utility cycling tended to focus only at either extreme of the structure-agency dualism. Many studies focused at the structural level, particularly safety, infrastructure and regulation, usually applied at a high level, from a planning and traffic engineering perspective. Alternatively, responsibility was laid at the feet of the individual who 'chooses' whether to cycle, or not, on the basis of their attitudes and values, assuming that significant change would be possible within the sphere of individual agency alone. The simplistic assumptions of linear causality underpinning these approaches and the lack of substantial change effected by either approach suggested that more effective framings might try to encompass a more complex and situated account of transport practices within everyday lives. Practice theory was identified as just such a potential framing which was investigated throughout this document.

This research, then, came to be a dual investigation into both practice theory and utility cycling, with each being used to evaluate the other. The remainder of this chapter offers some concluding comments on each in turn.

7.1 Implications for practice theory

Practice theory was proposed as a promising theoretical framework that could embrace utility cycling in terms of practical everyday coping, while also situating it in a larger social and material context. This presented a performative, recursive framing of recognisable sets of activities occurring within a practice context, shaping each performance, while at the same time being woven into that context by those same performances. Framed in this way, unique, adaptive acting by an individual in a particular

moment entered into dynamic relationship with a wider practice entity whose resources performances could draw upon and perform into being.

This practice lens appeared ideally suited to framing a unique perspective on the promotion of utility cycling while maintaining sight of the everyday context in which it would be enacted. Indeed, interviewing regular, everyday utility cyclists and investigating the travel planning programme amongst central city office workers, revealed a wide range of factors that could be identified as influencing modal 'choice', consistent with the wide range of elements and background practices that practice theory proposes. However, the specific focus of this programme on mode switching presented a situation where practice theory principles could be applied without requiring a convincing account of the all-important, eponymous practice entity. This led to questions as to whether the practice lens could be applied to such situations of practice switching without needing to fully resolve any of the participating practices in isolation and, instead, focusing on the *relative* utility of the competing practices, assessed within the context of a backdrop of numerous everyday practices.

This unique research focus, situated firmly between practices, allowed some of the fundamentals of the practice dynamic to be called into question. It highlighted the nature of a 'practice' as being a specific type of acting that performs into being its own context, as a dynamic array of related practice elements and other practices. This modal 'choice' focus suggested that it was not necessary to distinguish between the practices and elements that formed the context to that acting. It was not necessary to attempt to account for a set of elements, such as material artefacts, or human meanings or knowledge, as somehow belonging to an intermediate entity called a practice. Instead, adopting a wholly activity-centric approach allowed for the context to that moment of 'choice' to be determined purely empirically in whatever form it appeared from the perspective of the acting in that moment. In this way, the 'practicescape' – or practice landscape – emerged as the performative context to modal 'choice' – the activity of interest.

Centring the practicescape so strongly around the central activity of interest reinforces the central performative role of the practice-as-performance in weaving the practice-as-entity into a whole. It was noted in Chapter 2 that an emphasis on the practice entity risked neglecting the doing that occurs at the heart of a practice, and, instead, leading to practice being described only in static terms – especially amongst those who are not highly conversant with the unfamiliar, recursive language of practice theory.

The three analytical moves proposed in this work were designed to constantly refer back to the doing that is the focus of the research (regardless of whether this doing qualifies as a suitable 'performance' of a 'practice'). The first move specifically kicks off the whole research process by carefully identifying the central activity of interest as it relates to the research question, and then continually revisiting this throughout the research. The utility horizon is then presented in the second analytical move as an 'arena' to that acting – the 'field of play' in which the associated factors are performed into life. The imagery of an arena is intended to emphasise that it is a space that is designed for action to take place – thereby attempting to provide an image that allows for a more intuitive coexistence of the 'verb' and 'noun' aspects of practice and practising. And, finally, the emphasis on the narrative sense-making of the utility envelope as the key 'unit of analysis' in the final move reinforces that all of the factors (or elements) involved in the practicescape can only make sense when woven together into a narrative whole by the activity being observed. In this way, doing, or activity, is always front and centre via the practicescape approach, in such a way that it is cannot be easily dismissed in favour of analytical convenience or political expediency.

The practice idiom is not intended to offer conceptual simplicity for those attempting to tackle the complexity of sociotechnical change. Real-world change is messy and complex by its nature and practice approaches attempt to more accurately frame that mess and complexity. It favours genuine desires to attempt to bring about actual change and forces more difficult and fundamental questions to be asked about what shapes everyday practices. When practice theorists address questions of how practices may be intentionally intervened in, as reviewed in Chapter 2, they do not offer better, easier or even clearer solutions to problems, so that they can be successfully executed from the top down by policymakers in centralised government offices. Instead, they present intentional practice change as difficult, uncertain and indeterminate, where even the direction of causality may be uncertain, which may also cause difficulties even for policymakers. In most policy-making settings expectations of accountability and decisive evaluation of outcomes are considered best practice but may be based on linear assumptions incompatible with a practice-based paradigms.

Chapter 2 also raised important questions about the dynamics by which practices change. It was noted that the dynamics of practices have been criticised as better accounting for convergence and stabilisation of practices than the mechanism by which they change. Consistent with this criticism, practice theorists have devoted a lot more time to explaining how the practice entity influences performances than the reverse influence of uniquely adaptive performances on the practice entity. Where the dynamics of change are described, they tend to account for gradual (or sometimes not so

gradual), organic change that is possible within the collective expression of individual agency. This might include small behavioural tweaks, such as pedestrians learning to make way for cyclists on a busy shared pathway (Fleming, 2018), the development of norms, meanings or identities associated with ways of doing something (e.g., Aldred & Jungnickel, 2014; Shove, 2003; Strengers, 2013) or the development of knowledge, skills, experience, physical capability or resources to support that practice (e.g., Larsen, 2016a; Maller & Strengers, 2013; Shove & Pantzar, 2005a). Sometimes, the ability of people to adapt to change and to successfully do the work of incorporating change into their lives can determine the success or failure of an intervention. For example, Shove and Walker (2010) noted that the success of London's congestion charging scheme was in no way a foregone conclusion, and its success only became apparent once Londoners had successfully integrated it into the coordination of their daily lives and mobility patterns.

Practice theory, however, does not convincingly account for how significant change, beyond the reach of individual agency, such as a congestion charge or a new technology, comes about. The implication from some theorists is that as performances of a practice naturally shift over time, the elements of the practice naturally shift to match those performances. However, as Burk (2017) made apparent, the building of cycleways in a city required political activism *as well as* an increased level of cycling. In such cases, the mechanism of change sits well outside the typical performance of the practice. The act of riding a bike is almost completely unrelated to the actions necessary to organise interest groups, lobby politicians and otherwise agitate for action on cycleways. Most practice theorists do not address how such change happens, appearing to simply assume that the change will simply somehow happen.

By its nature, the outcome of any change in a practice or practicescape will only ever become apparent *after* the doing which performs it into being. Because most everyday human doing cannot be directly policed and intervened in, even within authoritarian political regimes, it is instead the *context* to that doing – the practicescape – which must be intervened in. But, as in the congestion charging example above, the effect of that intervention will not be evident until further performances take place within that practice context. Even then, after a certain amount of time has passed, one can still not be certain that every possible type of performance may have eventuated. As a result, a practice or practicescape, as a way of doing something, is always a backward-looking concept derived from observations of *past* performances that must have already happened (or are at least in the process of happening) in order to be observable.

However, these causal and temporal attributes of the practicescape are not necessarily a limitation of practice theory. Any attempt to account for how change may occur to anything that humans do is

clearly well beyond any single academic discipline – it is the stuff of life itself – and there is no avoiding the fact that the way a practice is done cannot be observed until it has been done, by definition. If it is accepted that, for the most part, social order and cohesion relies on the fact that most practices remain stable most of the time, then, when any kind of change is introduced with sustainable outcomes in mind, to be successful, it must be successfully stabilised and integrated into the countless activities that comprise everyday life. The London congestion charging scheme had to be successfully integrated into the ways in which millions of people travelled to work, visited friends, shopped, ate out, expressed hospitality, embodied their identities, etc. etc. In the travel planning programme, the office workers had to successfully re-integrate changed commuting plans into their daily transport, the care of children and household roles, their after work activities and their working lives – some suggesting that they may have to change jobs, because this integration had not worked well for them.

While an understanding of social responses and adaptation to past change does not make it true that future responses will thereby follow the same pattern, a policymaking paradigm predicated upon a practice ontology would reinforce a very different conception of change to the predominant paradigm today. A practice approach would "significantly widen the field of vision on what and who influences (intentionally or not) what happens" within any field of change (Duncan et al., 2018, p. 14), forcing a much wider and more open perspective of what constitutes change and what may represent a prospect for change. It would also emphasise the highly indeterminate, situated and contingent nature of change along an "uneven front of change" (Schatzki, 2015, p. 26). Retaining the "residual humanism" of Schatzki (2002, p. 116) in practices means that interventions in practices would focus on practical intelligibility – what makes sense to do – or, in the language of this work, *what works* for people – fully immersed in the midst of their lives, in real time. It would dissolve any monolithic, top-down conceptions of how change happens and respect that the real work of change happens at the integrative coalface of everyday actions in complex lives. Observation must be made at the level of the moment of acting, translated into contextual change and then reviewed again at the level of acting to assess its effectiveness. Pickering (2008, p. 13) refers to such a dynamic as "a politics of experiment", noting the need for a creative engagement with any phenomenon:

> "[I]t seems to me that we would be left with a *politics of experiment*. […] [T]here would be nothing left to do but imaginatively and critically explore the open-ended spaces of the world's possibility." (Pickering, 2008, p. 13, emphasis in original)

This reinforces the point that any attempt to intervene in the dynamics of modal 'choice' requires an ongoing engagement over time and at many levels.

The aim of the three analytical moves of the practicescape approach was to contribute a more pragmatic and intuitively accessible means of engaging with the practice idiom, particularly where instrumental practice switching is the desired outcome. The practical methodology, grounded in practice theoretical principles, is intended to be accessible to change-makers and policymakers, deeply engaged within the practicescape of their work, but perhaps not fully initiated into delving the arcane mysteries of practices. Given that the mechanisms for substantial change in practices, or encouraging practice switching, may occur well outside of the performances of the practices of interest themselves, and that the outcomes of such change can only be observed after the fact, the practicescape approach could perhaps be considered as a practice-compatible *evaluative* framework. It reflects and respects the complex dynamics of practices and how they change, without recourse to reductive linear assumptions. The themes identified as comprising the utility horizon then can frame and organise an experimental and fully engaged immersion into the moments of practising that are captured by the narratives of the utility envelope. Chapter 4 also demonstrated that statistical data can also be woven into this analytical framework where and as appropriate.

This framework could be used to assess the state of any particular desired practice within its practicescape – in a manner compatible with its observed dynamics – with an interest in promoting it over less desirable alternatives. While this framework could inform such intervention, the actual process of change would have to be engaged with creatively, and probably politically, outside of the model of the practising itself. However, the same model could then be used to quickly evaluate the impact of the intervention. So, although a practicescape framework may not be able to account for all of the possible mechanisms for changing what people do, it may be well suited to framing the doing-within-a-context at its core, so that outcomes can be evaluated in this context to facilitate ongoing, ground-level engagement with the practices and their alternatives.

Practice theory, then, it seems, can proceed without needing to account for the eponymous practice entity. The fundamental practice dynamic sets the *doing* aspect of a practice into a performative, recursive relationship with the *context* to that doing. This conceptual move offers a powerful, theoretically satisfying framing that promises to dissolve long-standing intellectual divides, like the structure-agency dualism. In practice, however, this theoretical elegance rarely translates clearly into empirical elegance. The practice landscape is a deeply entangled and complex domain, and research practice itself cannot be disentangled from that complexity. So, the recommendation resulting from this work is that, wherever possible, the practice landscape itself should do the talking, empirically. Practice theory is ultimately centred around *doing* – moments of acting – therefore, I suggest that,

wherever possible, the context of any activity of interest be determined empirically, by *following the utility* – following what works – outward from that moment of acting, and in relationship to the research question, out into its practicescape, to let the practising itself have the final word. There are no shortcuts in this process. Intervention in practices is a practice in itself – one that requires ongoing performance and constant engagement with the practicescape of interest itself, if lasting and fundamental change is the desired outcome.

7.2 Implications for utility cycling

> *"The bicycle must be integrated at every step of people's daily lives if a city is to be truly bicycle-friendly. Think bicycle-first." (Colville-Andersen, 2018, p. 158)*

This work set out by challenging some of the tacit and normative assumptions associated with much cycling advocacy and pro-cycling research. While the potential benefits of widespread utility cycling for the environment, public health and civic amenity are significant and well established, it does not necessarily follow that such benefits mean that utility cycling works equally well for people as a mode of everyday transport. Yet much of the mainstream literature implies that not only *could* more people be cycling, but more people *should* be cycling. An understandable eagerness to promote these benefits, perhaps often coupled with a personal enthusiasm for cycling generally amongst advocates and some researchers, meant that the collective benefits of utility cycling were sometimes conflated with the personal benefits as an unproblematically 'good thing' to do. A rational assessment of the benefits of utility cycling would suggest that its advantages are self-evident and that, therefore, all that is required is to remove the (mostly safety related) barriers and to educate people to those benefits. The self-declared intentions of a large cohort of "Interested but Concerned" cyclists (Geller, 2009), apparently eagerly waiting in the wings to ride a bike if it could only be made safer, further supports this perspective.

With respect to utility cycling, as a modal 'choice', however, the practicescape approach suggests that any attempts to intervene to encourage cycling as a mode of transport must *make sense*, or must *work*, for the person situated in the moment of acting. This approach recognises that laying the blame for modal 'choices' at the feet of the individual, in the moment of heading out of their door, in terms of attitudinal or informational deficit, places much of the onus on the individual to make non-car alternatives work for themselves practically, in the day-to-day context. If utility cycling is promoted in such a way, yet people feel that they are unable to bring their actions into alignment with such normative ideals, there is a risk of cognitive dissonance, leading to denial and inaction (Stoknes, 2014).

Consistent with a number of other authors (such as Mackett, 2003; Pooley, Horton, et al., 2013; Pooley, Horton, et al., 2011) I found that within the complexity of everyday lives, many travellers in fact had genuine, non-trivial reasons for driving a car. This becomes problematic when many of the issues faced are well beyond the agency of the individual to change, especially at infrastructural levels.

The aim of the practicescape approach, then, is to make it plain when cycling does, and does not, work for people embedded in the thick of real-life, everyday situations. In doing so, it hopes to encourage better targeting of promotional messaging with respect to utility cycling to those situations where it does in fact work well as a mode of transport, especially relative to the car. In this way, it hopes to reduce some of the controversy and 'bikelash' (Field et al., 2018) associated with many attempts to promote cycling in Christchurch and New Zealand.

Rather than laying the responsibility for actions solely at the feet of the individual, I propose that the role of making utility cycling work for people in an everyday context must be an intentional, shared endeavour engaged in by authorities, stakeholders and practitioners alike, who, collectively, are in a position to influence change beyond the scope of individual agency. This places the onus on those involved to help to shape the context – or *practicescape* – within which everyday modal 'choices' are made. This is so that what works for someone – what makes sense for them to do when fully absorbed in the moment of travel – is more likely to be the bike, even when concerns about the environment, long-term health and issues of civic amenity could not be further from their mind.

This is reported to be the case in Copenhagen, where by far the most common reason for travelling by bike is that it is simply the quickest and easiest way to get where they are going and environmental motivations, by comparison, are very low (Colville-Andersen, 2010). Mikael Colville-Andersen, founder of Copenhagen based urban design and cycling consultancy Copenhagenize, calls this approach "A2Bism". This is the idea that

> "If you make the bicycle the fastest way from A to B in a city – any city in the world regardless of climate or topography – you are halfway to the goal" (Colville-Andersen, 2018, p. 150)

Through a process of prioritisation, constant innovation and improvement and ongoing monitoring, the city is continually improving its cycling 'product'. But, at the same time, cycling, and being a green, liveable, healthy city is a large part of the city's branding (e.g. City of Copenhagen, 2011a; City of Copenhagen, 2011c). That city is designed so that what makes most sense for someone to do in the midst of their day, is much more likely to also be a good sustainable and healthy transport option. Cycling documents released by City of Copenhagen municipality constantly mention the need to

prioritise the ease and effectiveness of cycling at multiple levels, through a process of continuous improvement relative to other modes:

> "It is therefore necessary to improve travel times by bicycle compared to other transport forms. It requires prioritising ambitious short cuts like tunnels and bridges over water, railways and large roads. In addition, it requires many small speed improvements, including allowing contraflow cycling on one-way streets, allowing cycling across squares, implementing more Green Waves for cyclists, etc. Finally, traffic calming – on quiet streets near schools, for example – is also necessary if the bicycle is to have a serious advantage in traffic." (City of Copenhagen, 2011c, p. 7)]

Change at such a granular level, however, requires a continuous, ongoing engagement across many levels and in multiple locations. It requires attention to everything from the placement of a sign on one particular corner, all the way up to the transport policies of local and central government. Such an approach calls for an intentional *design* – or a 'practice design'– of utility cycling, to be entered into with mode switching from the car in mind. It calls for an ongoing enquiry into the everyday challenges faced by utility cyclists, so that creative solutions to actual, practical problems are constantly offered, evaluated and re-evaluated at that level – consistent with Pickering's "politics of experiment" (Pickering, 2008, p. 13). The word 'design' is intended to invoke images not only of creative and practical engagement, but also a sense of elegance, branding and aesthetic appeal, beyond mere functional efficiency. It could be argued that modern consumerist society has become expert at optimising and exploiting the utility envelope of consumers – both by cleverly identifying what people want and then fulfilling that desire, and also shaping the nature of that desire through advertising and marketing. I suggest that some of this skill and experience – that has worked so well to promote and sell *un*sustainable consumption – might also be turned toward more sustainable ends.

The practicescape approach can inform such a design process in a number of ways. First, it helps to place utility cycling within a relevant context of other practices. Importantly, it positions the bike relative to the other modes of transport, especially the car, and recognises the potential issues of arising from conflation of utility cycling with other, recreational cycling practices. It then evaluates the effectiveness of the different modes within the context of the other daily activities and practices that everyday travel enables and interacts with. In practice, this means that the utility of the bike as a mode of transport must be constantly compared to that of the car in terms of its ability to support the activities of daily life. This can be an inconvenient move because, although the bike has a number of important benefits that are frequently pointed out – environmental, physical, civic – when considered relative to the car and from the perspective of everyday realities, the prominence of these

benefits can become somewhat diminished. Simply pointing out benefits is revealed to be insufficient for a person who is just trying to get out of their front door and to get to a destination on time.

It was clear in this research that in many, if not most, circumstances everyday cycling was a more difficult proposition than everyday driving, with a not insignificant commitment to cycling required by participants to overcome the numerous challenges that the bike faced relative to the car. When analysing this situation, the utility horizon and utility envelope became useful conceptual tools. The utility horizon thematically identified the range of factors involved in everyday transport and the utility envelope could then be used to explore and identify the situations in which the bike works well, relative to the car, as well as potential opportunities for the utility envelope to be expanded. Comparing a typical utility envelope for the car with the same for the bike quickly highlighted areas in which their relative utility may be addressed.

The 'elephant in the room' for the bike throughout this research, however, was the sheer – invisible, almost taken-for-granted – capability of the car as an everyday mode of transport. Although some of the cycling literature recommended restricting and discouraging car use (Pucher & Buehler, 2008, 2012b; Wang et al., 2014), emphasis was primarily upon promoting cycling itself and making it safer. The dominance of the car means that without intervention to restrict the car in favour of the bike, in a low density city with wide streets such as Christchurch, for those who are able to drive and lack a strong conviction to cycle, most of the time the car will outperform the bike on the key functional aspects of a trip – as long as there is a park available at the end. Without some kind of intervention, no matter what measures are put in place to assist utility cycling, the car will continue to dominate the utility equation.

There is, however, also much that can be done to expand the utility envelope of utility cycling – which the utility horizon and utility envelope could assist in framing. Provision of safe, separated cycleway infrastructure is frequently mentioned with regard to improving utility cycling – and for good reason. There is also potential to increase the suitability of bikes and their accessories for utility cycling in Christchurch, and to move away from a technical, sport and recreational focus for all cycling. However, these are *socio*technical changes, meaning that simple provision of these material and technical changes is far from sufficient. Simply providing and promoting new material artefacts leaves the hard work of integrating bikes and cycleways into everyday lives to the individual – when many of the required changes may be well beyond the scope of individual agency or collective individual agency.

An extensive network of separated cycleways is clearly an entry-level requirement for any city hoping to develop an extensive utility cycling culture, however, it is important that this infrastructure works well in the everyday context of the cyclists using it. Among the participants in this research, safety of cyclists was identified to be a significant concern for nearly all cyclists and non-cyclists alike. Accounts of the cyclists spoken to made it clear that safety concerns are well founded, with a number reporting cycling accidents and nearly all reporting unsafe interactions as a frequent occurrence, requiring constant vigilance and defensive riding. However, any network will need to be extensive enough to cover the types of routes that cyclists actually take – some cyclists mentioned riding along a road parallel to a cycleway because it was too large a detour from their route. Additionally, they will need to link up with popular destinations. For example, the new Quarryman's Trail separated cycle route in Christchurch passes within 300 metres of Barrington shopping mall, yet does not link to it (Christchurch City Council, 2019). A number of participants, though, reported particularly liking the automated traffic lights which gave priority to bikes, and a feeling that it legitimised cycling in some way. Accounts of the cycling infrastructure in Copenhagen demonstrate, however, that an effective network requires continuous improvement – something that the city has been doing for decades – including ongoing evaluation and attention to the small details, such as maintenance priority snow clearing (e.g., City of Copenhagen, 2005, 2011b, 2011c, 2013a, 2013b, 2015a, 2015b, 2017).

This research also highlighted significant room for improvement of the bicycle itself in New Zealand, where bikes are typically heavily oriented toward sport and recreational use. A number of the regular cyclist interviewees were enthusiastic advocates for the upright 'Dutch' style of bike, with a more comfortable, upright riding position, full mudguards and chain guard, step-through frame, carrier rack and the capacity to carry pannier bags, and often with baskets and fixed lights. The typical Christchurch bike, however, is a racing bike, mountain bike or hybrid of the two, with a head-forward, performance-oriented riding position, less suited to comfort and observing traffic, and no accessories – just a frame and two wheels. Any capability for carrying things, lighting, protection from water and mud, etc. has to be added separately by the rider. This is, perhaps, the aspect of cycling where the conflation of the recreational and transport forms can have the most negative impact. Smith et al. (2011), consistently with some of the interview participants, reported that New Zealand cycle retailers are strongly oriented towards recreational cycling in terms of bikes, accessories and expertise. This can have implications for the type of cycling that New Zealanders perceive as possible on a day-to-day basis. Smith et al. (2011) found that New Zealand respondents, while they identified with images of sport cyclists and more 'technical' utility cyclists riding in clothing suited to exercise, they identified very little with typical European images of mainstream urban cycling similar to those in Copenhagen

and Amsterdam shown in Chapter 5. This suggests that if utility cycling is to become more prevalent as a mainstream mode of everyday transport, a significant change in the images and meanings associated with cycling will also need to shift at the same time.

Another phenomenon that has accelerated since the fieldwork phase of this research has been the advent of the electrification of two wheeled transport. Although four of the interviewees in this research rode electric bikes, since that time the prevalence of e-bikes has increased further, with sales increasing from 23,000 in 2017, to 47,000 in 2018 and 65,000 in 2019 (MacManus, 2020). At the same time, there has been a proliferation of electric kick scooter, or 'e-scooter', share schemes in the city (Fitt & Curl, 2020). These electrically assisted, bikes and scooters considerably alter the utility envelope of two wheeled transport. E-bikes, for instance, allow much greater distances to be covered comfortably (Fyhri & Fearnley, 2015; Ling, Cherry, MacArthur, & Weinert, 2017; McDonald, 2020) and, at least among the participants in this research, tend to be more practically equipped for everyday cycling, with mudguards, mirrors, carrier racks and permanently attached lights. E-scooters offer a different level of utility again and are likely to interact with utility cycling in the transport system generally in complex and unpredictable ways (Fitt & Curl, 2020). Three of the interviewees also had access to a cargo bike and one had used a bike trailer in the past. These bikes, more prevalent in European cities like Copenhagen, also have the potential to significantly change the utility of bikes with respect to children and larger loads, however, these bikes remain rare and expensive in New Zealand. If the utility of such bikes is to find its way into everyday lives of Christchurch residents, much work will be required to integrate them into daily routines, bike shops and bike maintenance provision, household roles, a sense of appropriate safety and care of children, and sense of personal identity.

All of these potential, technical enhancements to the form of the bike and the roads have the potential to enlarge the utility envelope of the bike generally and, therefore, also to encroach on a larger share of the trips that currently work best by car. However, the car enjoys a significant technical advantage over the bike: in exchange for the consumption of large amounts of energy, with long-term, collective social costs, the automobile offers a massively over-engineered capability to easily exceed the immediate needs of everyday travel, which the bike can never match. Therefore, any attempt to promote the bike as a mode of transport, must also attempt to in some way curb the excesses of the private car. Current policy in New Zealand to promote utility cycling usually also goes hand in hand with policy to improve vehicle transport at the same time, as noted in Chapter 1. The idea of the utility envelope concept is to help with the clear identification of situations in which the bike works well for

transport and to encourage such trips, while also taking measures to limit the car that correspond equally to these situations and for people for whom the bike would work well. Attention to the overall utility envelope of everyday transport may help to maintain the overall utility of the transport network, by targeting the promotion of utility cycling where, and for whom, it works best, thereby, hopefully, minimising some of the backlash from motorists in situations where they have little choice other than to drive.

The intention of the practicescape approach, then, with its utility envelope and utility horizon concepts, is to create an analytical framework in which the relative utility of the bike to the car can be systematically improved. Accounts from Copenhagen support the diverse and dispersed emphasis of the utility envelope approach, favouring partial, contingent, localised and textured configurations of factors over single, monolithic entities. It insists that any attempts to promote utility cycling as a mode of transport must involve stakeholders rolling up their sleeves and directly engaging – continuously and in an ongoing fashion – with the lived realities of everyday travellers as they head out the door to travel somewhere. This means that the hard work of encouraging environmentally and socially desirable practices must be borne collectively by the institutions promoting change and the individual going about their daily lives.

A final word on attitudes and values

Although, as stated above, the objective of this work has been to deflect much of the onus from the individual traveller to the collective, I would like to conclude with some thoughts on the culpability of the individual, however. While I suggest that much can be learned from traditional product development and design in the typical, consumerist sense, to place the onus on institutional and collective stakeholders to address the practical realities and difficulties of everyday people, there is an important distinction to be made. Traditional product developers need only analyse and explore the boundaries of the consumer's utility envelope and aim to extend it – through a combination of design and marketing – in whatever direction is identified, as long as it is technically possible and financially feasible. In other words, they simply need to exploit and encourage the extant utility envelope.

Promotion of sustainable practices such as utility cycling, however, often goes against the impulses of the utility envelope and individual self-interest that is often the target of consumerist product design. Despite the benefits of the bike, the appeal of the speed, power, comfort and convenience of the car is hard to ignore. Although I am suggesting that more could be done to enhance the utility envelope of the bike relative to the car, the car will likely always retain a fundamental advantage in

the utility stakes that the bike will always struggle to match. If large-scale and far-reaching change in favour of the bike and other alternative forms of transport is to take place, it seems likely that some kind of collective change of attitude towards the car will also be required. The 'conviction' cyclists identified in this research underscored this point. They demonstrated a strong belief in the value of utility cycling as a form of transport – whether for environmental, health or social reasons, or simply due to enjoyment – and this played a major role in making cycling 'work' for these people. Some of the interviewees spoken to went to considerable effort to travel by bike in situations where many others would have simply opted for the car. Their commitment to cycling increased the frequency with which they rode their bike and, therefore, correspondingly reduced the frequency with which they drove a car.

Therefore, to effectively support and promote utility cycling for transport, significant investment of time, money and consistent effort will be required by individuals and collective institutions alike, over an extended period of time. Such a sustained effort can surely only succeed if there is a widespread belief in its ultimate value and if it finds a cohort of people willing to translate that conviction into political action, despite the allure of the car, and to support the political commitment and action required. Only then will fundamental change be possible. While Copenhageners claim that they choose the bike because it is the quickest and easiest option, at some collective level (which is complex and historically path dependent) they must have made enough of a collective commitment to win the political battles to make such a fundamental commitment to utility cycling.

This differs from the attitudinal deficit approach critiqued in the opening to this work in that it places attitudinal culpability in its appropriate sphere of agency – the collective, political realm. Traditional approaches to promoting utility cycling place the onus at the feet of the traveller in the moment that they head out of their door – where the practicescape of everyday travel militates strongly against the bike. Instead, this approach proposes challenging people collectively and politically – where rational thought processes should (hopefully!) be appropriately engaged – to ask deep questions about the extent to which they are willing to make changes at the most fundamental level of social life – what it is that we do, and how we go about doing it.

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9. Appendix

9.1 Travel diary

Lincoln University PhD Research Project:

Daily Cycling Travel Record

Thank you for agreeing to participate in this research project.

***This travel diary is a place to make informal notes about trips you make by bike** to help jog your memory for our upcoming discussion.*

***It doesn't need to be exact, neat, or even complete** – it is simply your place to note down things that come up so we can talk about them later.*

***It's not going to be used for a scientific analysis** of your cycling, so use it in the way that works best for you.*

***There is space on the back of each page for notes** and random thoughts.*

***Times and locations don't have to be exact**, but enough detail to be able to remember where you went and what happened.*

***Please fill this out for any 3 days or so** before our conversation **where you travel by bike**, including trips by other modes of transport.*

***If you don't end up using your bike**, just note other travel you do and make any cycling notes from memory – or we could reschedule the conversation*

***Each row on the diary pages is a destination you arrive at.** Enter the time you leave that place in the last column, then start a new line for the new destination. Use more than one page for a day, if needed.*

There are plenty of pages,** in case you need them, **but there's no need to fill them all.

***If you have any questions**, please email Richard at xxxxx@lincolnuni.ac.nz or call or SMS 0xx xxx xxxx.*

Example:

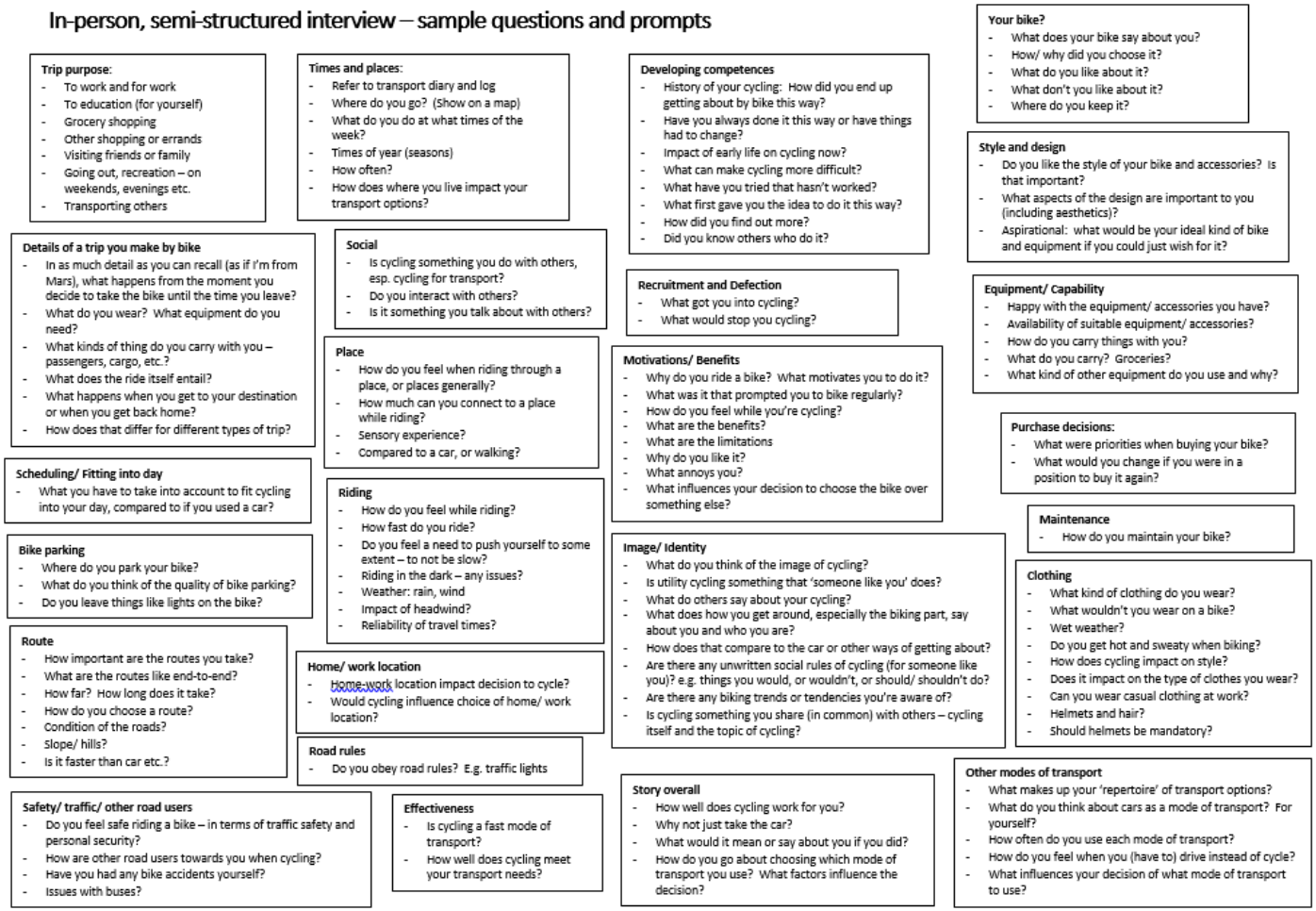
Place *Description e.g. home, John's*	**Location** *Part of town, e.g. Riccarton*	**How** *Mode, e.g. bike*	**Arrived** *Approx. time you arrived*	**Notes to self** *Any note you'd like to add (optional)*	**Left at** *Approx. time you left here*
***Your travel:** (leave first line blank if continuing from another page)*					
I began at… Home	in… Beckenham			and… (optional) I was running late	I left at… 8:15 am
I went to… Work	in… Addington	by… bike	I arrived at… 8:35	and on the way… (optional) Headwind. Got quite hot.	I left at… 5:00 pm
I went to… Various errands	in… town on way home	by… bike	I arrived at… n/a	and on the way… (optional)	I left at… 5:45
I went to… Supermarket	in… St Martins	by… bike	I arrived at… 5:55	and on the way… (optional) Got too much – didn't fit in backpack!	I left at… 6:30
I went to… Home	in…	by… bike	I arrived at… 6:35	and on the way… (optional) Bananas bruised	I left at…

Travel date: _____ **Day of week:** _____

Place *Description e.g. home, John's*	**Location** *Part of town, e.g. Riccarton*	**How** *Mode, e.g. bike*	**Arrived** *Approx. time you arrived*	**Notes to self** *Any note you'd like to add (optional)*	**Left at** *Approx. time you left here*
Example: *Each line is for the place you arrive at (or start the day at on the first line)*					
I went to... John's place	in... Papanui	by... bike	I arrived at... 8:30 am	and on the way... (optional) Very cold. Forgot gloves	I left at... 10:30
Your travel: *(Leave first line blank if continuing the same day from another page)*					
I began at...	in...			and... (optional)	I left at...
I went to...	in...	by...	I arrived at...	and on the way... (optional)	I left at...
I went to...	in...	by...	I arrived at...	and on the way... (optional)	I left at...
I went to...	in...	by...	I arrived at...	and on the way... (optional)	I left at...
I went to...	in...	by...	I arrived at...	and on the way... (optional)	I left at...
I went to...	in...	by...	I arrived at...	and on the way... (optional)	I left at...
I went to...	in...	by...	I arrived at...	and on the way... (optional)	I left at...
I went to...	in...	by...	I arrived at...	and on the way... (optional)	I left at...
I went to...	in...	by...	I arrived at...	and on the way... (optional)	I left at...
I went to...	in...	by...	I arrived at...	and on the way... (optional)	I left at...
Notes:	Any other notes about today's travel				

9.2 Semi-structured interview prompts

In the early interviews a wide range of question prompts were used while determining which aspects were important to address.



These were quickly simplified, however, in most of the later interviews. These were prompts only for the interviewer to be expressed as questions in natural language by the interviewer.

(Aldred, 2015) Can you tell me about cycling in relation to your life?

How is it that cycling works for you as a mode of transport?

(Aldred, 2015, stakeholders) What is your role in relation to cycling?

Can you tell me about how you get about from place to place?

Why do you ride a bike?

What does how you get around, especially the biking part, say about you and who you are?

How do you feel when you don't have your car with you?

How well does cycling work for you in Christchurch?

Can you tell the story of a cycle journey from end to end?

What is the wider story of driving, cycling and other forms of transport in Christchurch?

If you were in charge, what would you do with respect to transport in Christchurch?

Thinking only in terms of time, comfort and convenience, what do you think is the best way of getting around in Christchurch?

What does cycling need to do better to better fulfil your daily transport needs?

How does cycling fit into your expression of who you are and who you want to be?

Other prompts

Social – do/ talk about cycling with others

Experience of cycling (through places)

Scheduling/ Fitting into day

Provision for cycling in Christchurch generally

Politics of cycling

Bike parking

Motivation

Benefits and likes

Limitations and annoyances

Your bike

Style and design – bike and accessories

Maintenance

Home/ work location

Observing road rules

Effectiveness of cycling as a mode of transport

Choosing bike vs other modes

Other modes of transport

Route taken – nature, how chosen

Riding speed

Safety – including accidents

Other road users

Equipment/ accessories

Carrying things – how, what

Clothing – wear and wouldn't wear

Wet weather

Body temperature – too hot/ cold

Helmets

Image of cycling – own, others

Cycling trends

Types of cyclist

Cycling history

How would you design cycling for everyday transport?

What could improve cycling in Christchurch?

Negotiation of transport in household

How well would you get by without your car?

9.3 Interview sign-up form and screening questions

Registering interest in participating in cycling research

Many thanks for your interest in my research.

I am looking into how ordinary people in Christchurch use their bikes as a mode of transport, especially in how they make it work within all of the other aspects of everyday life. So I'd really like to hear your story of how cycling is part of your life – whether you cycle just a little or a lot.

For those who go on to participate, the research will involve:

- An interview: a face-to-face conversation about your cycling at a time and place that suits. It should take around 45 mins to 1 hour. There will also be a simple travel diary to complete in the days beforehand to help jog your memory in the interview.
- (For some) Active participation: looking in more detail at how some people go about one aspect of their cycling practice.
- A coffee voucher to fuel your next bike ride as a small token of thanks for those who take part.

I'm asking a few questions to make sure I get a good variety of people and cycling experiences, which may mean that I don't get to talk to everyone, but I really appreciate your willingness to share your story.

Before being involved, you will be shown a full information sheet to explain what will happen and how your anonymity and confidentiality will be protected, so you can decide if you want to participate. (That information is here, [link to full information sheet] if you'd like to see it now.)

Confidentiality

Your contact details and other information you provide will be stored securely and not shared with anyone else. If you would like me to remove your name and information, please contact me and it will be deleted.

Please get in touch via the details below if you have any questions.

Many thanks,

Richard Moreham

PhD Candidate

Department of Environmental Management
Faculty of Environment Society and Design
PO Box 85084, Lincoln University
Lincoln 7647, Christchurch, New Zealand

phone: 022 121 3649
email: richard.moreham@lincolnuni.ac.nz

Consent:

☐ I confirm that I have read and understood the nature of the research, that my confidentiality and anonymity with be protected and that I may withdraw at any time and request that my information be deleted.

Your contact details:

Name:	
Phone:	
Email:	

How did you find out about this research?

☐ I was handed an invitation, at this location (please enter): _____
☐ There was an invitation on my bike, at this location (please enter): _____
☐ I found out from a friend
☐ A link online
☐ Other: _____

About you

These questions are all optional, but will help me in selecting a wide range of people and different ways of cycling to include in the research. There are 8 short questions in total that should take a minute or two to answer.

a. How old are you?

☐ 18-25	☐ 25-40	☐ 40-49	☐ 50-65	☐ 65+

b. Are you?

☐ Female	☐ Male

c. Do you have to take children who live with you into account in your overall transport needs?

☐ Yes	☐ No

d. What part of Christchurch or its surrounding areas do you live in? (suburb or locality)

About your cycling

These questions relate primarily to 'ordinary' cycling for transport – to get from A to B – not cycling purely for sport or exercise (although, of course, you may do both types of cycling or combine them).

a. Do you have...?

☐ an electric bike	☐ cargo bike	☐ other interesting bike: _____

b. Do you do any of these by bike at least monthly?

☐ commute to work/ study
☐ grocery shopping
☐ other shopping/ errands
☐ social visits
☐ recreation
☐ sport cycling/ exercise
☐ other _____

c. How often do you ride a bike for transport?

d. Where or how far do you typically ride for transport? In terms of time, distance or name of destination

e. Is there anything else you want to add about your bike or how you cycle?